GEORGE WILLIAMS COLLEGE
LIBRARY
5315 DREXEL AVENUE
CHICAGO 15, ILL.

Digitized by the Internet Archive
in 2026

https://archive.org/details/bergsonforbeginn0000darc_o6l0

(105) 7 3/8

BERGSON FOR BEGINNERS

BERGSON FOR BEGINNERS

A Summary of his Philosophy

WITH INTRODUCTION AND NOTES

BY

DARCY B. KITCHIN, M.A.

SECOND EDITION

GEORGE WILLIAMS COLLEGE
LIBRARY
5315 DREXEL AVENUE
CHICAGO 15, ILL.

NEW YORK
THE MACMILLAN COMPANY
1914

194
B454z

12543

Printed by Ballantyne, Hanson & Co
At the Ballantyne Press, Edinburgh

Letter from Professor Bergson[1]

PARIS, 9 *Décembre*, 1913.

. . . Mais j'étais pris dans un tel tourbillon d'occupations que je ne pouvais absolument pas en trouver le temps. Je vous donnerai une idée de l'existence que je mène si je vous dis que, depuis deux ans, je n'ai pas pu prendre un seul jour de congé.

Je viens enfin d'achever la lecture du livre, et je tiens à vous dire le grand plaisir que j'y ai pris. C'est une exposition simplifiée, remarquablement bien faite, de l'ensemble de mes travaux. Vous ne vous êtes pas borné à prendre connaissance de mes livres, vous vous en êtes *imprégné* : c'est à cela sans doute, mais aussi à votre talent d'exposition, que tient la grande clarté de votre ouvrage. Les idées n'y sont jamais juxtaposées artificiellement ; elles viennent, comme d'elles-mêmes, se placer naturellement où il faut. Quoique vous disiez, dans votre Conclusion, que votre exposé est "marred possibly by misunderstandings," je n'y ai véritablement pas trouvé d'erreurs d'interprétation.

[1] These extracts are printed by permission. If not altogether relevant, they may yet be of interest to Professor Bergson's English admirers.

Si j'avais des réserves à faire, elles concerneraient l'exposé de "Creative Evolution," qui est fidèle, mais un peu court en comparaison du reste. Vous auriez pu insister davantage, peut-être, sur les chapitres III et IV du livre; mais je reconnais qu'un résumé de ces deux chapitres risquerait d'être assez obscur.

À la p. 137, vous dites avec raison que je compare le processus de l'activité libre à la maturation d'un fruit; mais vous ajoutez que je m'écarte ainsi du sens ordinaire du mot "liberté." Il en serait ainsi, sans doute, si cette maturation ne concernait que des sentiments; mais il y entre aussi de la pensée; et, si l'on tient compte de ceci, on trouvera, je crois, que ma conception du libre arbitre est celle même du sens commun.

D'autre part, je ne pourrais pas admettre que "there must be some inheritance of acquired characters, or otherwise there would be no evolution at all," (p. 204, note); car l'évolution, dans ce qu'elle a du moins d'essentiel, pourrait se faire de germe à germe sans que les habitudes contractées par l'organisme eussent d'influence sur le germe.[1]

. . . En attendant, je vous remercie de m'avoir consacré ce livre, où vous m'étudiez avec tant de pénétration et de sympathie . . .

H. BERGSON.

[1] The words quoted by Professor Bergson were adapted from Professor Ward, *The Realm of Ends*, p. 210, *Naturalism and Agnosticism*, p. 329, &c. Dr. Ward further develops his views on Weismann's theory of the absolute continuity of the germ in

Heredity and Memory, his Henry Sidgwick Memorial lecture. Those interested in a vexed question which has admittedly baffled the biologists, since no agreement has yet been reached, should refer to these books. It may be well to point out that Dr. Ward keeps on the empirical plane, seeking a scientific solution and addressing himself to the specific question—Are acquired characters inherited or not? Dr. Ward supports the "mnemic" theory, that there is an organic memory, and that what habit is for individual life that is heredity for racial life. This theory requires at any rate some inheritance of acquired characters. Professor Bergson holds that the evidence for hereditary transmission is insufficient to explain the facts, and that we must go outside science and postulate an *élan vital* or original impetus of life, passing from one generation of germs to the following generation. This vital impetus, being tendency and developing in the form of a sheaf, is the fundamental cause of variations.

PREFACE

THE aim of this book is to give the reader a general sketch of the philosophy of Professor Henri Bergson, in the order of its development and in the simplest manner that is consistent with accuracy, and so to introduce him to the original works and more especially to the excellent English translations. The summary or synopsis of *Time and Free Will* is on a scale sufficient to show the nature of the argument; it has been made fuller than that of the later books in view of the obvious importance of the *Essai* for the student, since it gives an exposition of the ideas which underlie the whole of Bergson's philosophy. My summary was made from the French, but I have compared it with the English translation in order to avoid any confusion in technical terms. That I should have ventured to condense so eloquent and (if I may add a personal opinion) so generally cogent an argument must find its apology and vindication in a desire to lead others to his writings. Those who meet with obscurities or suspect misconceptions have thus an easy remedy.

The Introduction is intended to indicate in a popular way the problems with which Bergson deals, and the Notes give an opportunity of discussing in

greater detail some of the main features of the philosophy and of hinting at certain criticisms with which it has met. Professor Bergson must be held responsible for nothing in this book which is not directly marked as a quotation.

SCARBOROUGH,
September 1913.

PREFACE TO SECOND EDITION

I HAVE to thank Professor Bergson for his generous expression of approval.

This edition follows so closely upon the first that I have not attempted a general revision. The additions include abstracts of three of Professor Bergson's more recent addresses and a note entitled "Bergson and Science."

CANNES,
February 1914.

CONTENTS

PAGE

THE WORKS OF BERGSON xiii

SOME BOOKS ABOUT BERGSON xiv

INTRODUCTION: THE COMING OF BERGSON . . 1

TIME AND FREE WILL 26

CHAPTER I 30

CHAPTER II 51

CHAPTER III 70

NOTES TO TIME AND FREE WILL 95

1. TIME AND SPACE 95

2. ZENO AND MOTION 111

3. DURATION AND THE SELF 119

MATTER AND MEMORY 138

PARALLELISM 169

AN INTRODUCTION TO METAPHYSICS 188

CREATIVE EVOLUTION 196

LIFE AND CONSCIOUSNESS 228

PHILOSOPHIC INTUITION 235

PSYCHICAL RESEARCH 244

CONCLUSION: A BACKWARD GLANCE 248

NOTE: BERGSON AND SCIENCE 283

THE WORKS OF BERGSON

(*The dates are those of the first edition*)

TIME AND FREE WILL (*Essai sur les données immédiates de la conscience*, 1889). Translated by F. L. Pogson, 1910.

MATTER AND MEMORY (*Matière et Mémoire*, 1896). Translated by Nancy Margaret Paul and W. Scott Palmer, 1911.

CREATIVE EVOLUTION (*L'Evolution créatrice*, 1907). Translated by Arthur Mitchell, 1911.

AN INTRODUCTION TO METAPHYSICS (*Introduction à la métaphysique*, an article contributed to the *Revue de Métaphysique et de Morale*, Jan. 1903). Translated by T. E. Hulme, 1913.

LA PERCEPTION DU CHANGEMENT (*Conférences faites à l'Université d'Oxford*). (Two lectures, 1911).

(The above are Bergson's main philosophical works : they should be read in conjunction with the following important magazine articles) :—

Le Parallélisme psycho-physique et la Métaphysique positive. Bulletin de la Société française de Philosophie. June, 1901.

Le Paralogisme psycho-physiologique. Revue de Métaphysique et de Morale. Nov., 1904.

L'Effort intellectuel. Revue philosophique. Jan., 1902.

Life and Consciousness (The "Huxley Lecture"). *Hibbert Journal, Oct.*, 1911.

L'Intuition philosophique. Revue de Métaphysique et de Morale. Nov., 1911.

(The following are of more general or psychological interest) :—

Laughter : an Essay on the meaning of the Comic (*Le Rire*, 1900). Translated by Cloudesley Brereton and Fred Rothwell, 1911.

Le Rêve. Bulletin de l'Institut psychologique international. May, 1901.

SOME BOOKS ABOUT BERGSON

The Philosophy of Bergson. By A. D. Lindsay. (A clear and able discussion, dealing mainly with the critical aspect of Bergson's thought).

A Critical Exposition of Bergson's Philosophy. By J. McKellar Stewart. (Contains much acute criticism of Bergson's chief positions).

An Examination of Professor Bergson's Philosophy. By David Balsillie. (Mainly critical, and useful as a corrective to the too ready acceptance of philosophical novelties).

Bergson. By Joseph Solomon. (A short sketch in the series "Philosophies: Ancient and Modern").

Henri Bergson: The Philosophy of Change. By H. Wildon Carr ("The People's Books")—A little book which contains a great deal.

A New Philosophy: Henri Bergson. By Edouard Le Roy. Translated from the French by Vincent Benson. (A sympathetic presentment of the main features of the philosophy).

Eucken and Bergson, their significance for Christian thought. By E. Hermann. (Bergson writes—"I readily accept, as a whole, what you say about the relation between the spiritualism of my doctrine and religion.")

Bergson, an Exposition and Criticism from the point of view of St. Thomas Aquinas. By Thomas J. Gerrard. (The appeal of scholasticism to common sense gives it a certain vitality.)

The Problem of Truth. By H. Wildon Carr. ("People's Books." Discusses in a simple and admirable way Bergson's notion of truth, among others. A more technical treatment is that by Miss L. S. Stebbing, *Proc. Aristot. Soc.*, new series, vol. xiii.)

An Introduction to Bergson's Philosophy. By T. E. Hulme. (In preparation.)

See also *A Pluralistic Universe.* By William James.

(The periodical literature connected with Bergson's philosophy is already very large. It is now rare for a philosophical magazine to appear without dealing with the subject in some form or other.)

BERGSON FOR BEGINNERS

INTRODUCTION

Ever since man began to reflect he has been confronted by no more interesting and no more obstinate problem than that of his own free will. In those happy early days when scientific inductions were unknown Nature was regarded as essentially capricious; she worked through living agencies; every fountain had (or was) its nymph, every tree its hamadryad; you had but to spell a natural object with a capital letter to make it function of itself. The ancient hylozoism remained, to some extent, mythological in character and, as Kant said, made science impossible.[1] The mechanism of the universe, with the resulting problem of freedom, has occupied the attention of philosophers from the time of Plato, and it was not long before it became a question of interest for theology. With St. Augustine and Thomas Aquinas arose the Christian doctrine of predestination, a doctrine carried to its extreme limits by Calvin and Jonathan Edwards, the latter showing with pitiless logic that divine prescience and human freedom were incom-

[1] See below, p. 92.

patible. Huxley once instanced these theologians to repel the suggestion that morality might suffer from a belief in physical determinism, but it is questionable if such a refutation is complete, since many have doubted whether predestination, held as a really living belief, was not itself harmful to morals. However that may be, the doctrine was repugnant to the masses, who continued to believe in God's foreknowledge and man's free will, regardless of the logical contradiction and content to consider it a mystery which might admit of a solution, even though we ourselves were powerless to resolve it.

For the philosopher there is no such easy passage from logic to faith. He, more than any man, is bound to square his belief with his reason, and it is therefore not surprising to find a tendency to determinism in Descartes, who is generally regarded as the founder of modern philosophy. It is true that he restricted mechanism to nature and automatism to animals, while he allowed to man a soul and free will. Man was a "conscious" automaton, although the expression is not used in the sense which Huxley afterwards gave to it. Nature was wholly determined, but man could exercise his freedom. Bergson[1] points out that Descartes left open a choice of metaphysical methods. There is a vacillation or indecision in his doctrine, for he follows neither the road of determinism nor that of free will to its logical conclusion. The second might have

[1] See also Ward, *Naturalism and Agnosticism*, i. 292.

led him to a real duration, a continuous creation, a true evolution, to a science rightly mechanistic in its method though limited in its operations to systems which it had artificially isolated from a continuous whole. If philosophy chose the less excellent way, it was largely because it was constrained by the natural tendency of our intellect and was, further, hypnotised by the influence of the Greeks, "artists for ever admirable." Descartes described man as a "confused mixture" of mind and body; the Cartesians attributed the correspondence between the two to the unceasing interference of God, a doctrine known as occasionalism and still widely held.

Leibniz was revolted by this perpetual miracle, and explained the connection as a pre-established harmony, evidently under the impression that a single act of God was more in accordance with reason than a series of actions perpetually renewed, though why he should have thought so is not very clear, for to God the one must be as simple as the other. Spinoza led one form of the Cartesian doctrine to its logical conclusion, and pictured man and the universe as a vast mechanism, in which mind and matter were two, entirely disparate, attributes of one and the same substance, God. For him this mechanism was an aspect which reality takes for itself; for Leibniz, it was an aspect which reality takes for us: although, since all our knowledge is and must be human knowledge, the two aspects, so far as we are concerned, amount to the same thing. The two had this in common, that they

found it difficult to pass from God to things, from eternity to time—a difficulty also found in all absolutist theories.

Spinoza has been called an atheist, but for him God was everything, nature nothing, and his pantheism, which Hegel [1] more rightly called acosmism, differs from the pantheism which identifies God and nature—the latter being, in Schopenhauer's phrase, a polite atheism, although his dictum is not necessarily final. A modern example is found in Haeckel, who had the temerity to describe his own system as the purest monotheism, for he, like Spinoza,—although the resemblance is only superficial—defines the universe as consisting of matter and force (spirit), two attributes of substance or God. But the important point for us to notice is that, whether we accept the God of Spinoza, or the Absolute of Hegel, or the pantheism of Haeckel, there is in no case any room for human freedom. If we believe in an absolute God, we can see in evolution nothing more than the unrolling in time of a plan previously conceived and once for all determined. Things are what they are and the consequences of them will be what they will be, and any action of ours can in no way affect them. If we approach the question from the scientific side the result is the same; nor is it surprising that it should be so, for as science has put determinism into its premises, so determinism will naturally come out in its conclusions. We have only to assume that scientific generalisations

[1] Hegel's view of Spinozism is not accepted by all writers.

are universal laws, that the principle of the conservation of energy applies to the totality of things, and there is little room for freedom. The assumption is generally made by scientific philosophers, but it is a large assumption, certainly not a logical one, for it involves the fallacy of composition.

But what of Kant? the reader may ask. Did he not profess to destroy knowledge in order to make room for faith? Did he not show that God, immortality and freedom could be lived, even if they could not be known? Put into the simplest, and therefore possibly insufficient terms, Kant held that freedom could not be proved to exist or even to be possible, but that we cannot get over our own feeling of freedom; and he solves the antinomy, or contradiction, between the demands of pure science and pure ethics as he conceived them by saying (in Dr. James Ward's words[1]) that "the self is here noumenal and its freedom transcendental, but its active manifestations are phenomenal and necessarily determined." Very few have been able to accept Kant's solution completely, and Dr. Ward goes on to call it a "splendid failure" though possibly containing a great underlying truth. With this truth we are not at present concerned, but may content ourselves with noting Kant's failure to show how a transcendental free-will could interact with a phenomenal world of cast-iron necessity. A faith divorced from knowledge could satisfy nobody. Kant was

[1] *The Realm of Ends*, p. 292.

not far from a solution, but was prevented from reaching it by his doctrine of time and space.

Ordinary folk have always been remarkably tenacious of the belief in their own free will. They agree with Dr. Johnson that all argument is against it, all experience in its favour. It was not for them to attempt to unravel a mystery which du Bois-Reymond placed among those seven enigmas of which we know nothing, and shall never know anything—*ignoramus atque ignorabimus*. Their instinct led them, while accepting free will, to regard the arguments of the libertarians as so much special pleading, an attempt to demonstrate an indemonstrable fact; at the same time there was an uneasy feeling that science was gradually tightening its grip and widening its scope, and that a day might come when the belief in freedom could no longer reasonably be held. It was not enough to know that science had not yet proved determinism. Could we confidently assert that, however far scientific knowledge might be extended, freedom could never be disproved? Bergson shows us that common sense was right in its instinctive clinging to free will, right in its distrust of libertarian arguments, wrong in its fear of what the extension of scientific knowledge might import.

If we start from an Absolute who has foreordained all that will be until the end of time we can, as we have said, find no room for freedom; if we assert that the whole of reality is contained in the equations of the scientist, our search will be

equally futile. But in either case we should be starting with a conception which is in some sort artificial. Men lived and acted long before philosophers and theologians evolved their idea of the absolute; reality existed long before science began to frame its description of such parts as it was able to isolate from, and dissect out of, the whole. If we take a more natural and immediate view of the world, what do we see?—a mass of human beings, conative and cognitive agents, as psychologists call them, constantly acting and interacting, striving with one another, striving with and at times triumphing over nature. What would strike us particularly would be something new ever emerging from the old; a number of free beings perpetually moulding nature to their wills; nature inert and subject to "laws," men free and active agents turning these laws to their own advantage, not overcoming nature altogether, nor yet by it entirely overcome. We should see an evolution or progress in things, and this evolution becoming vastly more rapid after man began to take a hand in it. We should, in a word, see everywhere *prima facie* evidence of our own free activity. If we were told that we were merely carrying out the foreordained decrees of the Almighty, we should rightly ask why God had given us an illusive sense of freedom; we should argue that if we, as we seem to be, are free, God must in creating us have limited himself; that he must be, as J. S. Mill rather unhappily phrased it, a finite God: we might hold that God in fraction-

ating himself into his creatures had disappeared, as it were, in his own creation; that he was immanent in Nature and one with it; or we might consider that our finite wills pointed to an infinite Will, and that God, though self-limited and immanent in Nature, yet transcended it. A system of pluralism, as it is called, is consistent with theism, though all pluralists are not necessarily theists. And the essential difference between pantheism and theism is that the former regards God as one with the universe, while the latter considers him as both immanent and transcendent. Of how God limited himself and created us we can form no proper idea; the question is beyond our powers.[1]

If on the other hand we were told by the scientific philosophers[2] that our hopes and fears, our desires and affections were all contained, as Huxley said, in the primitive nebulosity of the universe, we might well ask how that could be. Huxley would reply that we do not know, and yet are

[1] For a discussion of pluralism see Dr. Ward's *The Realm of Ends*, and the works of W. James and Dr. F. C. S. Schiller. Pluralism has difficulties of its own, which Bergson recognises, and endeavours to escape by his theory of the vital impetus. He cannot be described as a pluralist, although he has striking affinities with both Dr. Ward and the late William James. This is illustrated by the eagerness with which the latter welcomed the French philosopher, an eagerness stimulated, no doubt, by a desire to cover up the ragged ends of his own teaching. Nor can Bergson be called a pragmatist, although his point of view has much in common with that of pragmatism.

[2] For a criticism of scientific philosophy see James Ward's *Naturalism and Agnosticism*, and compare F. H. Bradley's pungent characterisation in *Appearance and Reality*.

compelled to assume it from what science teaches us of the laws or sequences observed in phenomena. He would tell us that everything that happens in the world was implicitly there from the beginning; that, in fact, anyone with a complete knowledge of scientific laws and possessed of perfect mathematical powers could predict from the year 1 anything and everything that would occur in the year 2000; that there was no such thing as free will or spontaneity, these being fond illusions of man's imagining. He would not deny the fact of consciousness, but would explain it as a phosphorescence, an epiphenomenon, a mere by-product of molecular movements in the brain, as ineffective as the shadow cast by the smoke from a passing train. We were, he would say, conscious of what went on but could effect nothing ourselves,—conscious automata, with as little spontaneity as the flakes in a snowstorm or the pebbles on a beach. He would proceed to describe the relation between our states of consciousness and brain movements as a parallelism, always constant and exact. If asked how such a parallelism could be constant unless one caused the other, he would admit the difficulty, again plead ignorance, refuse to allow that the psychical could cause the physical, and probably, if pressed, be driven to the assertion that the physical caused the psychical, thus destroying the parallelism and substituting for it a materialistic hypothesis of cause and effect. But if we persisted in our inquiry as to how the primitive meteoric dust or nebula could contain

consciousness, we should obtain no more satisfactory reply than that "our one certainty is the existence of the mental world, and that the existence of *Kraft* and *Stoff* falls into the rank of a highly probable hypothesis." Or again "If I were to choose between absolute materialism and absolute idealism I should feel compelled to accept the latter alternative." Huxley, indeed, is not very consistent.

Herbert Spencer, similarly interrogated, would prove a more amenable witness. He would allow that consciousness must have been present in some form in the primitive nebula; that, if the world had to be interpreted in terms of mind or of matter, the former would be the only possible alternative, though he would maintain that in either case it was a mere unfruitful quarrel about symbols; he would acknowledge that his philosophy did not go back to the beginning of things nor reach to the end; that it was, properly speaking, not philosophy at all, and yet the only possible philosophy, a restatement in more exact terms of the conclusions given to it by the sciences. He would tell us that a first cause is a necessary datum of consciousness, but that it cannot in any manner or degree be known in the strict sense of knowing. In the *Principles of Sociology* he added that the power manifested throughout the universe, distinguished as material, is the same Power which in ourselves wells up under the form of consciousness; and that the conception to which we must tend is much less

that of a universe of dead matter than that of a universe everywhere alive.

The last sentence has a curiously Bergsonian ring. From these and similar admissions, from the extremely suggestive changes which Spencer introduced into *First Principles* at the close of his life, from the fact that he felt constrained to modify his formula of evolution, a formula untouched for thirty years or more, even after the final edition of the book had been stereotyped, we may conclude that he, like Huxley, was not altogether happy in the philosophical position which he had taken up. Both affirmed determinism because they could find no place for freedom in the equations of science, and both, like Kant, limited knowledge to scientific knowledge, although Spencer's phrase "in the strict sense of knowing" suggests that there may be a method of knowing less rigorous than that of the exact sciences and not verifiable in the same way, which might nevertheless give us knowledge. Huxley, with all his honesty and brilliance of intellect, was essentially a scientist, and his incursions into philosophy were rather in the nature of a relaxation; and it is therefore, perhaps, not surprising that he should have arbitrarily divided up reality into two halves and should have looked exclusively to the mechanical half for an explanation of the whole. Even determinists speak and act as though they were free, although they feel themselves compelled to deny their freedom in deference to the fancied demands of a cast-iron system of cause and effect,

overlooking the fact that freedom, like motion, life, evolution, and every other progress, may, and indeed must, in its essence lie beyond the purview of a science which is strictly mathematical and exact in its method. The only way to disprove freedom is to prove the absolute universality of the principle of mechanism, and this, it is needless to say, is far from being done. Spencer himself only just missed the turning which might have led him to give us a real philosophy of change or evolution. "But he had no sooner started to follow the path than he turned off short. He had promised to retrace a genesis, and, lo! he was doing something entirely different. His doctrine bore indeed the name of evolutionism; it claimed to remount and redescend the course of the universal becoming; but, in fact, it dealt neither with becoming nor with evolution."[1]

Huxley, Spencer, and Haeckel are alike in this, that they repudiate philosophical materialism. Materialism nowadays finds few defenders, and we are no longer told, as we were in the time of Büchner and Moleschott, that the brain secretes thought as the liver secretes bile. There is much in a name, and it is probable that materialism has declined in favour from the vulgar connotation with which it has come to be associated. Cicero tells us that Sardanapalus ordered his tomb to be inscribed with the words "What I have eaten and drunk is mine; all else is lost;" and the Roman adds that such an epitaph is more fitting for an ox than for a man.

[1] *Creative Evolution*, p. 384.

The philosophical position of Sardanapalus would be popularly regarded as materialistic, and we cannot wonder if serious writers decline to be associated with it. Realism and dualism have suffered a similar degradation, though to a less degree, from their constant connection with the adjectives naïve, popular and obvious. And yet we have, after all, as Kant says, only a choice of three possibilities—though Bergson has discovered a fourth; either the mind is determined by things (materialism), or things are determined by the mind (idealism), or between mind and things we must suppose a mysterious agreement (dualism; psycho-physical parallelism). Science, when it begins to philosophise, usually adopts parallelism, although the agreement is as much a mystery to it as it is to religion. Hence the position is an unstable one, and we find parallelism continually edging away in one of the two directions, materialism and idealism. The question as to which of these two is right is purely a question as to which fits in the better with all the facts.[1]

[1] Hence any suggestion that materialism is morally inferior is to be deprecated. Prof. Rudolf Eucken in his Nobel lecture *Naturalism or Idealism?* goes so far as to say that "to subordinate all human striving under the aim of utility seems to Idealism to be an intolerable degradation, a complete surrender of all that constitutes the greatness and dignity of man." However, no connection between a particular philosophy and morality has ever been satisfactorily established. Science has its martyrs as glorious, if not as numerous, as those of religion. We may rejoice in our Euckens, our Bradleys, our James Wards and our Martineaus, even while we sadly reflect that not so very long ago religious fanaticism would have burned them at the same stake as our Mills, our Huxleys, our Spencers, and our Leslie Stephens.

Common sense sees the sun rising and setting and finds this mode of expression convenient and indeed sufficient for everyday affairs. Science looks at the phenomena more closely and discovers that they are due to the rotation of the earth. As they are repeated, it is able to predict their repetition in the future. So there grows up the immensely useful science of nautical astronomy, among others, but the methods which science uses, though more exact, do not differ essentially from those of common sense. Both common sense and science are primarily concerned with our possible action on things. If we ask what motion is, or life, or evolution, science will tell us that it does not know and in all probability will never know. It can calculate relative motions, but motion itself it is compelled to represent as a series of immobilities. Now it cannot be the business of philosophy to do the work of science over again, nor merely to extend its working to new fields and new conclusions, for science can do this work itself and do it very well. If it is to have any *raison d'être*, philosophy must proceed by a new method. It must take warning from the rather pathetic spectacle of Herbert Spencer trying to build up a living growth like evolution out of such dead abstractions as scientific generalisations. The result in Spencer's case was, as Dr. Ward said, a stupendous house of cards. Spencer's work may have been like that of a child piecing together the *disjecta membra* of a jig-saw puzzle, but it was none the less good work, well worth doing, if only that its insufficiency

might be conclusively demonstrated. Except for Spencer we might have no Bergson. We might not otherwise have recognised the limitations of science and the fact that science cannot usefully attempt to transcend those limits, for they are limits natural to what Bergson calls our intelligence. In his illuminating figure, the mechanism of our ordinary knowledge is of a cinematographical kind, and this method is, for science, the only practical method, and so long as we are dealing with inert matter our conclusions will hold good, for in its case we can afford to neglect the flow of real duration without committing a serious error.

If the plight of the scientific philosopher is desperate, the rational philosopher is hardly in better case. The Platonic ideas are shades of shadows, intellectual refinements of realities dimly apprehended; and yet not realities at all, but mere views or moments artificially cut out of reality, stable things taken from an unstable flux. "To reduce things to Ideas is therefore to resolve becoming into its principal moments, each of these being, moreover, by the hypothesis, screened from the laws of time and, as it were, plucked out of eternity."[1] When we analyse the real, when we place immutable Ideas at the base of the moving reality, we are doing what Spencer did, though in a different fashion; we are again applying the cinematographical mechanism of our intellect, and the consequences are far-reaching. Modern philosophers are always re-discovering

[1] *Creative Evolution*, p. 332.

the conclusions of the Greeks; they cannot help doing so, as long as they, like them, are content to take snapshots, at intervals, of motion, growth, change, life, evolution, in a word, of universal becoming. You may take as many positions of a moving body as you like, but you will never therefrom constitute motion; motion is not made up of immobilities. Neither can becoming be constituted out of immutabilities. Philosophy ought to begin with the motion; it has begun, both in ancient and modern days, with the immobilities; and in so doing it has merely followed the natural bent of the intellect. Bergson says that the whole philosophy of Ideas can be summarised in the proposition that physics is but logic spoiled; the physical is a degeneration of the logical, it is the logical fallen into time and space. Science, understood as the system of concepts, thus becomes more real than reality, and is held to be prior to human knowledge, which can only discover it by degrees; "prior also to things, which awkwardly try to imitate it."

If science is wrong, and philosophy, both ancient and modern, is also wrong, it is likely that their error springs from the same source. It is Bergson's object to track out this error, and to show us not only where they err, but why they err and why they cannot help erring—unless they adopt a new method. Bergson indicates this method and shows us how to apply it. He does not pretend to give us that ordered body of knowledge, *totus, teres atque rotundus*, which the word philosophy is usually taken

to imply; hence there is a certain lack of proportion in his treatment which has led to some misunderstanding, for he often leaves us to dwell for ourselves on features which are already sufficiently recognised in order to emphasise those which are novel or comparatively neglected. His thought, too, has been in some degree progressive—another stumbling-block for his readers; and his fondness for sharp contrasts, effective and legitimate though they are, may sometimes be misleading unless the student is able to bring the picture into focus for himself.

For Bergson's literary style no praise could be too high. It is at once picturesque and precise, stimulating the imagination and yet rarely leaving the mind in doubt as to the meaning he wishes to convey. He is a true poet-philosopher, not in the ironical and half-contemptuous sense in which Dr. Ward applied the term to Spencer, but as uniting the creative genius of the artist with the power of nice analysis of the psychological and metaphysical expert. To compare him with Plato savours of exaggeration, but it may perhaps be said that of no other philosophical writer could such a comparison more properly be made. His magnificent use of metaphor and illustration, the distinction and clarity of his style, the logical precision with which he develops his argument, combine to form an unrivalled vehicle for the impression of new truths upon reluctant ears. They have even caused a not unnatural feeling of opposition. Dr. Schiller humorously says of William James that his *Prag-*

matism was "so lacking in the familiar philosophic catchwords that it may be doubted whether any professor has quite understood it."[1] So Bergson has suffered from the excess of his qualities. He has been accused of hypnotising us by fine language, of using metaphor where we look for facts, and of illustrating where he ought to prove. No doubt, even the best-intentioned writer may at times be run away with by an analogy. Bergson, however, employs illustration in the legitimate way of giving relief from continuous abstract argument. If we examine his well-known comparison of the life-force to a stream, we find that he does not suggest that, *because* the stream does so-and-so, the life-force *therefore* does the same. He uses the figure in order to assist us to grasp his meaning. Metaphor is unavoidable in certain connexions, and to ask that philosophy should prove itself by facts is to assume that it is verifiable in the same way as science and to imply *a priori* that it has no right to a separate existence. If Kant had given us more illustration, we should be grateful; if Comte had been less wordy, we should read him, perhaps, with more patience.

And yet no philosophical writer gives more attention to facts than Bergson does. It is the very essence of his indictment of intellectualism, whether philosophical or scientific, that it fails to explain more than a part of the facts. He begins, like Kant, with a criticism of existing theories, with

[1] In his preface to *Pragmatism*, by D. L. Murray.

a discussion of those antinomies, or contradictions, which hover like ghosts above these theories and refuse to be laid. He offers a solution of the difficulties, and his solution is entitled to hold the field until new difficulties arise or a better solution can be found. For he maintains that the task of philosophy is never done; it must march forward hand in hand with science, incomplete but always progressing, ready to adapt itself to the new that is ever being born, breaking up its intuitions into concepts which any man may test by dialectic, handing on the torch of truth so that future generations may trim it to their needs. The philosophy he contemplates is not so much an opposition to science as an extension of science.

Bergson's beauty of style and the comparative absence of technicality in his writing may have won him many readers, but it cannot be doubted that his powerful appeal to the general public, almost without parallel in matters of so high dispute, has lain in the promise he gives of freeing them from the age-long controversies which make the thinking man despair of ever finding truth. When we see a learned Oxford professor listening with politely lifted eyebrows to the refutation of mechanism given by an equally learned Cambridge professor, we may well feel that, except for the pleasure of the battle and the mental activity it entails, the strife of twenty-five centuries of philosophy has been waged in vain. Bergson appears, like a *deus ex machina* in a Greek play, to compose the strife,

and to tell them that the quarrel of idealism and realism, as to whether presentations are in the mind or out of it, is a mere logomachy, since the problem should have been stated in terms of time rather than in terms of space. On the main question, the equally long dispute between teleology and mechanism, as to whether evolution is the unfolding of a plan or a mechanical rearrangement according to the fixed laws of science, he explains that teleology is merely inverted mechanism, or mechanism looked at from the other end, and that both are equally, or nearly equally, false. For it is true that Bergson has a teleology of his own, although it is not the radical finalism usually indicated by the word. We are conscious of our own free will and yet cannot reconcile it with the scientific doctrine of causation or the principle of the conservation of energy. Bergson shows that any reconciliation is impossible on the lines usually followed by both the supporters and the opponents of free will; that, when libertarians attempt to state the problem in conceptual terms, they at once hand themselves over to the enemy; that both sides start with assumptions which are not justifiable; but that the problem itself fades away as soon as it is properly envisaged. So, too, with the relation between mind and body. If there is anything of which we are certain it is our own personality and individuality; yet science can point to an undoubted correspondence between our psychical life and the movements of the brain; further, it

is certain that these molecular movements are only part and parcel of the general movement of the matter of the universe. Bergson reads the riddle for us; he acknowledges the correspondence, shows how far it extends and explains how and why our psychical life goes beyond molecular movements. Again, we feel that we occupy a privileged place in nature, that we are, as men, the crown and roof of things; but biological evolution traces our descent from the animal, shows that we are one with the ape, not essentially different from the sponge. Bergson resolves the enigma; he discusses evolution in the light of his own philosophy and makes clear in what true evolutionism consists. We, or many of us, have a strong feeling of the possibility of a survival after death; but whence come these "souls" which are supposed to exist, and to represent us, after the dissolution of the body? We know that the body arises, quite naturally, from the union of two cells derived from the bodies of its parents; when, how, and why does the soul enter into it?

Bergson has not, as yet, considered the question of immortality, nor has he formulated in any strict manner his conception of God. A consideration of the main principles of his philosophy would seem to lead to an idea of God as a *focus imaginarius* of life and spirit, if it is permissible to use the Kantian expression in a new connexion. God with Bergson, we feel, can hardly be other than a hypostatisation, a making real or substantial, of his leading thought,

duration.[1] Spirit, we think, can never die and therefore must, in a manner, survive its dissociation from matter, but it is difficult to see how on Bergsonian principles it could retain its personality and individuality. However, the indications he gives us are vague and general, and the above opinions must be taken with reserve. We may well be content to let him develop his philosophy in this direction when, and if, he is willing to do so.

[1] "Some have wanted to see in it a kind of atheist monism. Mr. Bergson has answered this point himself. What he rejects, and what he is right in rejecting, are the doctrines which confine themselves to personifying the unity of nature or the unity of knowledge in God as motionless first cause. God would really be nothing, since he would do nothing. But he adds: 'The considerations put forward in my *Essay on the Immediate Data* result in an illustration of the fact of liberty; those of *Matter and Memory* lead us, I hope, to put our finger on mental reality; those of *Creative Evolution* present creation as a fact: from all this we derive a clear idea of a free and creating God, producing matter and life at once, whose creative effort is continued, in a vital direction, by the evolution of species and the construction of human personalities.' How can we help finding in these words, according to the actual expression of the author, the most categorical refutation 'of monism and pantheism in general'?" E. Le Roy, *A New Philosophy*, p. 224. M. Le Roy is quoting from a letter written by Bergson to P. de Tonquédec. Many critics, it must be confessed, have failed to find in Bergson's writings the categorical refutation of pantheism referred to above. Free will, the existence of spirit, and a continuous creation of new forms are consistent both with pluralism and with theism, but there is no reason why we should tie Bergson down to his definition of God as "a continuity of shooting out." (*Creative Evolution*, p. 262). He has always shown a desire to simplify the problem with which he is dealing by refusing to anticipate a discussion of questions with which he was not immediately concerned; and it may be that his treatment of theism, when made, will prove to be as distinct an advance upon the doctrine of *Creative Evolution* as that was upon the Cartesian dualism of *Time and Free*

But apart from these ultimate questions, Bergson has given us, as we have seen, much food for thought in the solutions he offers of the classic puzzles of life and mind; a veritable feast of thought, indeed, which may well cause an indigestion unless we can bring to it the concentration of mind necessary for its proper assimilation. He vindicates science, rescuing it, in part, from the relativity alleged by agnosticism, while he limits the sphere within which it can be said, with any sort of truth, to be in touch with reality. The difficulties of idealism, realism, dualism, materialism, nominalism and conceptualism, and of a host of others, seem to vanish at the magic of his touch. Perhaps the most striking result of Bergson's philosophy is that these oppositions need not arise at all. The dilemmas themselves are seen to be artificialities of our own contriving.

As a summary of *Time and Free Will* forms a main feature of this book, it need not detain us here. Bergson tells us in his preface that the first two chapters are intended to lead up to the third. The problem of freedom may have been his chief objective at the time, but his doctrine of duration is undoubtedly to be regarded, in the light of subsequent events, as the main result of the *Essai*, for it contains the germ of all his future thought, and

Will. An examination of theism would be of little value, unless it were preceded by a refutation of mechanism. Bergson has been labouring at the roots of the tree of which the theist enjoys the flowers and the fruit.

Time and Free Will is therefore in many respects the most important and original work he has given us. The reader should obtain as clear as possible a view of what Bergson means by duration, and of the capital distinction which he draws between real time, time lived, concrete time, on the one hand, and, on the other, scientific time, time measured, abstract time, for without a proper appreciation of this, the central point and foundation of his main writings, he cannot hope to understand Bergson.[1]

An interesting coincidence may be pointed out, recalling in a manner the famous parallel instance where Cambridge and Paris were engaged on the same problem, an engagement which resulted in the simultaneous calculation of the existence and position of the planet Neptune by the astronomers Adams and Leverrier. For Dr. James Ward, one of our most distinguished thinkers, had already in his article on Psychology in the *Encyclopædia Britannica*,

[1] Mr. H. S. R. Elliot's onslaught on Bergson fails, because, as may be seen from p. 69 of his *Modern Science and the Illusions of Professor Bergson*, he has completely misapprehended Bergson's position. Sir Ray Lankester, the eminent scientist, contributes a preface in which he tells us that Bergson is neither great, nor French, nor a philosopher, and he repeats the humorous comparison of a metaphysician to "a blind man in a dark room hunting for a black cat which—is not there." That Sir Ray should write such a preface is, indeed, not a little remarkable, but he is so clearly philosophising "from an easy chair" that serious criticism would be out of place. He questions Bergson's science, but seems to speak from hearsay and gives no instances. Bergson does not claim to be a biological expert, and he therefore goes for his facts to the best available authorities. If the facts are wrong and can be shown to be essential to his conclusions, he would be compelled to restate them, but the two suppositions must be first established.

11th ed., anticipated Bergson's theory of duration or real time. Dr. Ward says[1] that "in 1886, three years before the publication of Prof. Bergson's *Données*, I had written a long paragraph on this topic, containing *inter alia* the following:—'Thus . . . there is an element in our concrete time-perception which has no place in our abstract conception of time. In time, conceived as physical, there is no trace of intensity; in time, as psychically experienced, duration is primarily an intensive magnitude.'"

There is, of course, no question as to Bergson's originality and independence, and to him will always belong the credit of fully working out a conception which bids fair to revolutionise our philosophical thinking.

[1] *The Realm of Ends*, p. 306, note.

TIME AND FREE WILL

Bergson tells us in his preface that the difficulties of the problem of free will are due to a previous confusion of duration with extensity, of succession with simultaneity, of quality with quantity, a confusion, in other words, of time and consciousness with space and matter; the unextended has been illegitimately translated into the extended, and quality into quantity. Towards the end of the book he explains the method he has adopted in order to get rid of these difficulties. As science for the convenience of study separates physical phenomena from consciousness, from our way of perceiving or thinking about them, so Bergson proposes to effect a similar separation from the other side and to consider intensity, duration and voluntary determination apart from all that they owe to the intrusion of the sensible world. Intensity in consciousness is a sign or symbol of quantity in space. It arises, Bergson says, from a compromise between pure quality and pure quantity, and he asks why psychology should retain this bastard conception when physics, in order to predict phenomena, has decided to treat as negligible the impressions they make on consciousness.

But here an objection presents itself. We shall

see later the effect of this separation on physical science; how, for instance, it is compelled to regard motion as a series of motionless states; how, by eliminating time, it becomes abstract and unreal. No doubt the progress of science has splendidly justified the position which it takes up, but it is one of Bergson's main contentions that science for that very reason can give us only a partial and incomplete view of reality. For its own convenience it has cut up reality into artificial pieces. Will not the same result occur—a partial and therefore a false view—if the separation is made from the psychological side? I am conscious of the scent of a rose, or I am thinking of a rose smelt in the past or of roses heard of or written about, but in no case can I separate my consciousness from external things. Consciousness always is of external things. However, for his immediate purpose Bergson's separation is legitimate enough. It is necessary to remember the limited nature of the present inquiry, and not to draw hasty conclusions from a contrast made for a special purpose and not intended to be definitive. For it will be noted that he does not deny that we are as a matter of fact conscious of a greater or less intensity, but that he seeks to explain how this consciousness arises.

Much of the confusion comes from philosophers following Kant in distinguishing between two kinds of quantity, extensive and intensive, size and degree. As size or magnitude in the external world is never intensive, so intensity in consciousness is never

magnitude; no one has ever explained what they have in common. Psychophysicists naturally take up the admission of philosophers that a sensation can increase, and ask by how much it increases, and proceed to invent means to measure the increase. Bergson maintains in this chapter that psychophysics has no proper foundation; that the intensity of a psychical state is pure quality; and that when we attempt to measure it we are, for the most part, measuring its external cause or occasion.

If it could be shown that so much consciousness corresponds to so much external stimulus there would be a quantitative relation between the two, and a presumption that psychical states were determined. The object of the present psychological inquiry is to refute this presumption and so to clear the way for Bergson's vindication of freedom. He is not here concerned with the other very difficult questions connected with sensation.

In *Matter and Memory* Bergson holds that the difference between quality or sensation and pure quantity is irreducible, which is indeed the contention of the present chapter, but he goes on to show that our sensations are always more or less extensive, and that the opposition assumed by dualism between quality and quantity is not radical. In *Time and Free Will* he is frankly dualistic, though the separation is made for the purpose of investigation; in *Matter and Memory* he is also dualistic but explains how the main difficulty of dualism, the interaction of mind and body, may be overcome.

In *Creative Evolution* he appears to advance to idealistic (or spiritualistic) monism; as, for instance, when he says: "We are not the vital current itself; we are this current already loaded with matter, that is, with congealed parts of its own substance which it carries along its course" (p. 252).

Bergson defines his spiritualistic monism in the "Huxley" lecture. "That these two forms of existence, matter and consciousness, have indeed a common origin, seems to me probable. I believe that the first is a reversal of the second, that while consciousness is action that continually creates and multiplies, matter is action which continually unmakes itself and wears out; and I believe also that neither the matter constituting a world nor the consciousness which utilises this matter can be explained by themselves, and that there is a common source of both this matter and this consciousness."

Bergson has been building his philosophical edifice floor by floor; the scaffolding he uses for one floor is not the same as that which he uses for the next; we shall not see the edifice as a whole until the building has been completed and the temporary scaffolding has been removed. If this is borne in mind, much criticism falls to the ground.

SYNOPSIS OF CHAPTER I

The Intensity of Conscious States

If common sense[1] were asked whether there are differences of quantity between purely internal states, it would unhesitatingly answer Yes. But the question is less simple and more important than is usually supposed. A larger body occupies more space than a smaller body and a greater space contains a smaller space, but can we say that a more intense sensation contains a less intense sensation? Do we pass through the less intense before feeling the more intense? A number in a series contains a preceding number and is therefore said to be greater. Can we form a series of this kind with intensities?

It is usually said that there are two kinds of quantity (1) measurable and extensive, (2) intensive but not measurable, although one intensity may be said to be greater or less than another intensity. But what can there be in common between the extended and the unextended? Intensive magnitude seems to be a contradiction in terms, since magni-

[1] Common sense is used in philosophy to denote the opinion of ordinary folk who take the obvious view of things and are not trained to make nice distinctions. Bergson—like the scholastics before him—has, in general, a high opinion of common sense, for it may sometimes instinctively grasp a truth which the more laboured analysis of the intellect tends to obscure.

tude implies something extended, *i.e.* divisible. We are apparently led in some way to translate the intensive into the extensive and to compare two intensities by the confused intuition of a relation between two extensities. But the nature of this operation is not so easily determined.

The most obvious solution is to define the intensity of a state of consciousness by the number and size of the objective, and therefore measurable, causes which have given rise to it. There is, for instance, a relation between sensation of light and candle-power; but more commonly it is the intensity of the effect which leads us to form a hypothesis as to the number and nature of the causes. Our most confident judgments are often made when the subjective aspect of the phenomenon alone strikes us. We may compare two intensities without the least appreciation of their causes.

A similar but more subtle hypothesis is that, *e.g.* a louder sound is referred to a greater vibration, or that every state of consciousness corresponds to a certain disturbance of the molecules of the brain. The last hypothesis fails because we are conscious of the sensation and not of the molecular movement. The question remains—Why do we associate intensity with quantity or size? The problem is complicated by the fact that the same name is applied to intensities of very different kinds. Effort and sensation suggest muscular or physical conditions, but no extensive element seems to be involved in profound joy or sorrow. In the latter case inten-

sity is reducible to a quality affecting a greater or less mass of psychic states. As an obscure desire develops into a deep emotion, it gradually permeates a greater number of psychical elements. What was before important to us is now regarded with indifference. Something similar happens in dreams where quite ordinary doings become tinged with romance. When an object dominates us, its image has affected a thousand feelings or memories. Our intellect, however, dislikes this mode of expression and prefers clear-cut distinctions such as we find in space. Hence we say that the emotion has grown larger, although it has no space-filling magnitude. The change is really a change of quality.

The idea of the future, pregnant with infinite possibilities, is more to us than the future itself, when all but the most desired have been necessarily given up. Thus hope has more charm than possession, expectation than realisation. Joy at its lowest level seems to be an orientation of our states of consciousness towards the future. In the next place, our ideas and sensations follow more rapidly; our movements require less effort. Finally, extreme joy becomes a sort of ecstasy. As the form of the emotion changes it involves a greater or less number of our psychic states. Thus we can tell whether our joy colours the whole of our impressions during the day, or whether some escape it, and we are led to think that the successive joys are one and the same sentiment increasing in magnitude.

The æsthetic sentiments offer more striking

examples of this progressive intervention of new elements, which really only modify the nature of the emotion, although they appear to increase its magnitude. Spencer wrongly reduces grace to economy of effort, for that in itself is insufficient to explain its irresistible attractiveness. What we essentially find in anything we call very graceful is, besides ease and lightness, a sympathetic bond between it and ourselves. There is a qualitative progress which we interpret as a change in magnitude owing to the difficulty of expressing the subtleties of psychological analysis in language.

In studying the beautiful it is better to begin with examples produced by conscious effort, passing by insensible gradations from art to nature. We then find that the object of art is to put to sleep the active or rather resistant forces of our nature until we realise the idea suggested and sympathise with the feeling expressed. The procedure is a form of hypnotism, refined and in a sense spiritualised. So music may suspend our normal activities and by its own suggestion fill us with extreme emotion. The rhythm of poetry lulls our minds and compels us, as in a dream, to think and see with the poet. The pale immobility of the marble controls us by the eternity we see in the feelings it expresses. Architecture, too, has this immobility and a rhythm of its own. Its symmetry and repetition make us, as we say, forget ourselves, and an idea even lightly indicated may then suffice to fill our minds. Art aims not so much at expressing

feelings as at impressing them on us. Nature, like art, proceeds by suggestion but lacks rhythm, and uses in place of it the sympathy which exists between us and itself.—Thus all our feelings have æsthetic character, provided that they are suggested and not caused. Æsthetic emotion appears to us to have degrees of intensity and elevation, but it really progresses by distinct phases, like a state of hypnosis, the phases corresponding less to variations of degree than to differences of state or nature. Besides degrees of intensity, we distinguish degrees of depth or elevation. Inferior art may give only sensations, but most emotions are instinct with innumerable sensations, feelings or ideas, and each is thus a state unique and indefinable and only to be embraced in its totality by reliving the life of the experient. It is the artist's task to remove the barriers which time and space interpose between his consciousness and ours. Hence the successive intensities of æsthetic feeling correspond to changes of state in ourselves.

Pity consists at first in putting ourselves mentally in the place of others, but if it were nothing more it would but rouse repugnance. A new element is soon added, the need of aiding and relieving. A certain self-interest may enter into the lower forms of compassion, but true pity desires to share suffering, to avoid the appearance of being an accomplice in the injustice of nature. This need for self-humiliation is not without a charm of its own, for it flatters our self-esteem. Thus pity shows a

qualitative progress from repugnance to fear, from fear to sympathy, and from sympathy to humility.

Such psychic states are rarely unaccompanied by physical symptoms, which probably count for something in our estimate of intensities. A sensation properly so-called is undoubtedly related to an external cause, although its intensity cannot be defined by the magnitude of the cause. Muscular effort more than any other phenomenon seems to suggest quantity or at least magnitude, and the illusion of common sense in this regard is supported by some scientific writers, such as Bain and Wundt. The latter says that a paralytic has a very clear sensation of the force which he uses in the effort to raise his leg, although it remains inert. This view has been well criticised by William James. When a paralytic strives to raise a useless limb, he cannot execute that movement; but, whether he wills it or not, he executes another. If there is no movement at all, there is no sensation of effort. James goes on to say that the feeling of effort is centripetal and not centrifugal. Our concern is rather to discover in what exactly our perception of its intensity consists, and we maintain that the more a given effort seems to increase, the greater is the number of muscles which contract in sympathy with it, and that the apparent consciousness of a greater intensity of effort at a given point is really the perception of a larger surface of the body becoming involved in the operation. If you try to clench your fist more and more, you will probably localise

the sensation of effort entirely in the hand and fail to notice all the other muscles which in turn come into play. Hence you are led to assign a magnitude to the psychical force although it has no extensity. This and many similar instances bring us to the conclusion that "our consciousness of an increase of muscular effort is reducible to the twofold perception of a greater number of peripheral sensations, and of a qualitative change occurring in some of them" (p. 26).

In both superficial efforts and profound emotions there are qualitative progress and increasing complexity, confusedly apprehended. But consciousness, used to thinking in terms of space, gives the feeling a single name and localises the effort at a particular point; it then recognises a local effort unchanging in character but increasing in intensity, and a feeling which grows without changing its nature. Bergson now goes on to show that the same definition applies to states intermediate between the two.

Intellectual effort or attention is not purely physiological. The movements which accompany it are not the cause or the result of the phenomenon, but form part of it, as Ribot has shown. There always enters into voluntary attention a purely psychical factor, if it be only the exclusion by the will of all ideas but the main one. But, after making this exclusion, we think we are still conscious of a growing mental tension, an increasing immaterial effort. This impression is found on analysis to be the feeling of a muscular contrac-

tion spreading over a wider surface or changing in nature.

The effort of emotional tension does not differ essentially from that of attention. Keen desire, unrestrained anger, passionate love, violent hate may each be reduced to a system of muscular contractions co-ordinated by an idea. The intensity of violent emotions may then be simply the muscular tension which accompanies them. Darwin has given a remarkable description of the physiological symptoms of rage, but Bergson does not go so far as to say, with William James, that this emotion is reducible to the sum of the organic sensations. There will be always present a psychical element which gives the movements their common direction, but the increasing intensity of the state itself is, he maintains, nothing but the more and more profound engagement of the organism. It is true that in restrained anger consciousness seeks to hide the organic disturbance, but if this is altogether eliminated anger becomes a mere idea, or, if you prefer to call it so, an emotion without any intensity.

Herbert Spencer says that intense fear expresses itself in cries, struggling, palpitations, &c. Bergson goes further and maintains that these movements form part of the fright itself; it is by means of them that fright becomes an emotion capable of passing through different degrees of intensity. Suppress them altogether and fright is merely the intellectual representation of a danger to be avoided. There is, then, no essential difference as regards

intensity between the deep feelings already discussed and the violent emotions. When we say that they gain in violence we mean that peripheral sensations take the place of internal states. The intensity always consists in the multiplicity of simple states which consciousness dimly discerns in them.

Passing to sensations properly so called, Bergson notes that the intensity of these apparently simple states varies with the external cause of which they are said to be the conscious equivalent. How can we explain the intrusion of quantity into an effect which has no extensity and is moreover indivisible? Sensations are classed as affective or representative, although the division is no hard and fast one.

There is nothing in common, he repeats, between superposable magnitudes like numbers of vibrations and sensations which do not occupy space. If a more intense sensation appears to contain a less intense, if, like the organic disturbance itself, it suggests magnitude, it probably does so because it preserves something of the physical disturbance to which it corresponds. It can preserve nothing of this if it is merely the translation in consciousness of a movement of molecules, for we have no consciousness of the molecular movement.

It may be that pleasure and pain, instead of expressing only what is going on in the organism, as is ordinarily supposed, indicate also what is about to take place there. Why should nature, so profoundly utilitarian, confine her intimations to the past or present, which no longer depend on us?

We pass by insensible degrees from automatic to free movements, the latter having this peculiarity that they intercalate an affective sensation between the external action and the reaction willed. In many organised beings an external stimulus is followed by the appropriate reaction without consciousness being concerned at all. But when consciousness *is* concerned, it seems probable that pleasure and pain are produced in order to authorise resistance to the motor reaction which would otherwise follow; either the sensation has no *raison d'être* or it is a beginning of freedom. If we are to resist, nature must give us some sign of the reaction which is to follow; and what sign could she give except a sketching out (*esquisse*) and, as it were, prefiguring of the coming automatic movements in the very midst (*sein*) of the sensation which is being felt?[1]

Of the molecular disturbance nothing remains in consciousness except the sensation into which it has been translated, but the automatic movements which tend to follow a certain stimulus are likely to be present in consciousness as movements; otherwise the sensation has no *raison d'être*. The intensity of pleasure and pain, then, may be the consciousness of involuntary movements about to take place, which

[1] Hagen (quoted by Kirchner) designates pain as the defence of nature against a superior hostile element and therefore as a salutary arrangement for making the soul attentive to the dangers threatening it. Pain is called by Burdach "the warder of life." This view combines the physiological and teleological explanations of pain and is not unlike Bergson's. The latter develops in *Matter and Memory* the theory given in this chapter.

would, in fact, take place if we were automata and if consciousness did not intervene to prevent them.

If this theory is sound, we should estimate the intensity of a pain by the larger or smaller extent of the organism affected, by the number and extent of the parts of the body which our consciousness regards as being involved. Richet gives a remarkable description of disgust, which leads to the same conclusion. Compare also Darwin's picture of pain increasing gradually in severity. An analysis of the idea of extreme pain shows that it is insupportable, *i.e.* that it urges the organism to try to escape it in a number of different ways. A nerve may transmit a pain which is independent of all automatic reaction; a greater or less stimulus may affect this nerve accordingly; but consciousness would not interpret these differences of sensation as differences of quantity unless they were attended by the more or less extensive reactions which usually accompany them. Without these subsequent reactions, the intensity of the pain would be a quality and not a magnitude.

We have hardly any other means of comparing several pleasures. What is a greater pleasure if it is not the pleasure we choose? In the presence of two pleasures, the body inclines towards one of them. This inclination consists in a number of slight movements in the organs interested and even in the rest of the body. The action would be spontaneous if we did not arrest it.[1] "It rests

[1] The greater pleasure is the pleasure finally chosen. Our choice or preference is a certain disposition of our organs which

with us to check it, but the attraction of the pleasure is nothing but this movement that is begun, and the very keenness of the pleasure, while we enjoy it, is merely the inertia of the organism, which is immersed in it and rejects every other sensation. Without this *vis inertiæ* of which we become conscious by the very resistance which we offer to anything that might distract us, pleasure would be a state, but no longer a magnitude. In the moral as in the physical world, attraction serves to define movement rather than to produce it" (p. 38).

Many representative sensations have an affective character and so provoke a reaction in us which we take into account in estimating their intensity. A great increase of light or a loud noise comes to us as a shock. Among flavours more or less bitter it is difficult to distinguish differences other than those of quality; they are like shades of the same colour. We interpret them as differences in quantity on account of the pleasure or disgust with which they affect us. Further, the external cause of even a purely representative sensation may cause movements in us by which we measure it. To hear a

makes our "body" incline towards one of two pleasures presented to our mind. The action would be automatic if "we" did not check it. The argument seems to imply that the body, if left to itself, might prefer less pleasure to more pleasure. A pine-apple may set our mouth watering, but, mindful of a former indigestion, we elect for the greater pleasure of abstinence. But there is a large class of pleasures in which our organs or body are not interested and where there would be no literal inclination towards one of them. In what would our choice or preference consist in those cases?

distant sound, or to distinguish a feeble light, we have to strain our senses. The light appears to be feeble just because it has to be reinforced by our own efforts. When a gun is fired close at hand, we recognise the intensity of the sensation by the irresistible reflex movements provoked in us. Ch. Féré has shown that every sensation is accompanied by an increase in muscular force measurable by the dynamometer. We are, however, barely conscious of the increase, and when we consider the precision with which we distinguish sounds, colours, &c., we see that a new and easily definable element must come into play.

An external cause of a sensation is extensive and therefore measurable. Our whole experience shows us a certain shade of sensation answering to a certain amount of stimulus; we associate the idea of a definite quantity in the cause with a definite quality in the effect, and finally we put the quantity of the cause into the quality of the effect. Thus the intensity of the sensation becomes a magnitude.

Apart from the shock or vibration it may cause to the organism, a sound is pure quality, though we are led by our experience to interpret this quality in terms of quantity. When we speak of the intensity of a sound of medium force as a magnitude, we are thinking of the effort we should ourselves have to make to produce the same effect on our ears. Even differences in pitch are not quantitative, although we are led to think them so from what we know of the vibrations to which they correspond,

from their position in musical notation, and from the bodily effort required to produce them.

Recent experiments go to prove that in sensations of heat and cold there is a distinction of nature rather than of degree. A more intense heat is really a different heat. Anyone can experiment for himself, provided that he clears his mind of any knowledge of causes and gives his whole attention to the sensation. When the psychophysicist raises a heavier weight, he tells us that he feels an increase of sensation. Consider whether this should not rather be called a sensation of increase. There lies the whole point at issue, for in the first case the sensation, like its external cause, would be a quantity, and in the second a quality representative of the magnitude of its cause. If you lift what appears to be a very heavy weight but is really quite a light one, you expect to bring into play a number of muscles which are not in fact required, and the effect is almost ludicrous. It is by the number and nature of these sympathetic efforts that we measure the sensation of weight; the sensation would be pure quality if we did not ourselves introduce the idea of magnitude. We are similarly led by our previous knowledge of the cause of the sensation to attribute quantity to the intensity of light. Physicists are aware that colours change as they receive more or less light, but ordinary folk hardly notice the fact, unless forewarned. They are convinced that each object has its own particular colour, and, instead of saying that they see the colour changing,

assert that their own sensation of luminous intensity varies. Consciousness receives a qualitative impression to which our understanding once again gives a quantitative interpretation.

Physics speaks of degrees of luminous intensity as real quantities; psychophysics goes further, and maintains that the eye itself measures intensities of light. Interesting experiments have been made in this direction by Delbœuf and others. Bergson does not contest the results, but says that everything depends on their interpretation. A candle placed at a certain distance from a sheet of paper lights it in a certain way; if the distance is doubled, four candles are required to give the same sensation. You conclude that if you had doubled the distance without increasing the number of candles, the illumination would have been one-fourth as bright. This is the physical, not the psychological, effect; you have not compared two sensations but have used one sensation to compare different lights at different distances. The physicist uses the sensation as an algebraical symbol, which aids the solution but disappears from the result.[1]

But with the psychophysicist it is quite otherwise; he studies the sensation itself and claims to measure it. Delbœuf, for instance, exhibits two shades of a colour (which we will call A and B) and by an ingenious apparatus varies a third shade C until

[1] One candle at one foot $= y$; four candles at two feet $= y$; therefore one at one foot = four at two feet; and the physicist can afford to neglect y altogether.

an observer can tell him that the shade B lies equally distant between A and C; or in other words that the contrast AB = the contrast BC; and he maintains that from similar experiments a scale can be constructed by which we might pass from each sensation to the next by equal sensible contrasts; in this way our sensations would measure one another. If, Bergson says, the contrast AB is really equal to the contrast BC, formed of different elements; if two sensations can be equal without being identical, then psychophysics is on a sure foundation. But this equality is the point he questions. Is it more than metaphorical?

When we say that one grey tint is equidistant between two other grey tints, we are affirming something which we might equally well affirm of colours, as, for instance, that orange is at an equal distance between green and red. But we know from experience that differences in grey tints correspond to differences in amount of light, and we proceed to erect changes in quality into variations in magnitude—a thing we should not dream of doing with orange, green, and red. In the counting of intermediate shades between two given shades of grey our imagination is aided by our memory. The estimate is always rough and varies with individuals. When the shades differ considerably the difficulty is much greater, and Delbœuf obtained very different results from different observers and, indeed, from a series of observations by the same observer. But quite apart from this, in order to establish the

equality of the contrasts, it would be necessary to prove that two successive contrasts are equal quantities, and we only know that they are successive. In fact Delbœuf's contention assumes a very important postulate—that the differences between the shades successively obtained, each of which represents the smallest perceptible increase of physical stimulation, are equal quantities; and further, that a particular sensation is equal to the sum of the differences which separate the previous sensations, starting from no sensation at all.[1]

This is precisely the postulate of Fechner, who followed Weber's law that, given a certain stimulus causing a certain sensation, "the amount by which the stimulus must be increased for consciousness to become aware of any change bears a fixed relation to the original stimulus" (p. 60). The law has been much modified by Fechner's disciples, but Bergson makes no difficulty in admitting that some such relation exists, while denying that we can therefore proceed to equate "quantity of sensation" with the corresponding stimulus. Two different sensations cannot be called equal, unless some identity remains after their qualitative difference has been eliminated; but what could then be left, since this qualitative difference is all that we perceive? Fechner tries to get over the difficulty. Sensation admittedly changes in jumps (*par sauts brusques*) while the increase in the stimulus is continuous,

[1] Or, in other words, that a sensation is an aggregate of smallest perceptible differences.

and he calls these jumps *minima* because each corresponds to the smallest perceptible increase in the stimulus. Eliminate the specific quality of the differences, and a common property remains, namely that they are minima. Being minima, they are all equal and can be added together. So, treating the difference between two sensations as a quantity, he regards a particular sensation as an aggregate made up of minima. But this reasoning is based on the postulate already mentioned.

Bergson contests the postulate. I feel a sensation S and, as the stimulus continuously increases, I feel after a time the sensation S′. One sensation has taken the place of another, but if the passage had been comparable to an arithmetical difference, I should have been conscious of an interval between the two states and of reaching S′ by adding something to S. By giving the transition a name, you make it first a reality and then a quantity. Now the only realities are S and S′. If they were numbers, their difference would be a reality; but if they are simple psychic states, what is the interval which separates them? And what is the transition from the first to the second but an act of thought, "which, arbitrarily and for the sake of the argument, assimilates a succession of two states to a differentiation of two magnitudes?"

It is the reduction of psychic states to symbols which introduces the idea of an arithmetical difference.[1]

[1] Mr. A. D. Lindsay writes, "As Kant says, the apprehension of the sensation is immediate, and . . . its degree is not arrived at

"All psychophysics is condemned by its origin to revolve in a vicious circle, for the theoretical postulate on which it rests condemns it to experimental verification, and it cannot be experimentally verified unless its postulate is first granted. The fact is that there is no point of contact between the unextended and the extended, between quality and quantity. We can interpret the one by the other, set up the one as the equivalent of the other; but sooner or later, at the beginning or at the end, we shall have to recognise the conventional character of this assimilation" (p. 70).

Psychophysics is after all only a development of a conception familiar to common sense. It is our inveterate habit to interpret subjective states by their external causes. Physics is not concerned with subjective states and yet continually confuses the two, and so adds to the illusion of common sense. Psychophysics then attempts to measure both, and is encouraged by those philosophers who talk of intensive magnitudes while denying that psychic states can be measured. If it is once admitted that

by counting the intermediate stages. This is the important point. . . . There are no parts, there are only the several sensations perceived to be different. The difference can only be known when the sensations have been experienced and placed in a certain series, and neither the series nor any one of the sensations can be regarded as constituted by the differences. The perception of qualitative difference is ultimate. Any facts about the continuous change of the stimuli necessary to produce such different sensations have nothing whatever to do with the question" (*The Philosophy of Bergson*, p. 69).

a thing has size, that it can grow or diminish, it is natural to ask by how much it grows or diminishes; and, even if direct measurement is impossible, it by no means follows that science might not discover a suitable method. Either, then, sensation is pure quality, or, if a magnitude, measurable.

We conclude that the notion of intensity is (1) in representative states of consciousness an acquired perception of extensive magnitude introduced from the outside, and (2) in affective states a confused perception of the larger or smaller number of simple psychical phenomena involved in the fundamental state; although no sharp division of the two is possible. "The idea of intensity is thus situated at the junction of two streams, one of which brings us the idea of extensive magnitude from without, while the other brings us from within, in fact from the very depths of consciousness, the image of an inner multiplicity. Now, the point is to determine in what the latter image consists, whether it is the same as that of number, or whether it is quite different from it. In the following chapter we shall no longer consider states of consciousness in isolation from one another, but in their concrete multiplicity, in so far as they unfold themselves in pure duration. And, in the same way as we have asked what would be the intensity of a representative sensation if we did not introduce into it the idea of its cause, we shall now have to inquire

what the multiplicity of our inner states becomes, what form duration assumes, when the space in which it unfolds is eliminated. This second question is even more important than the first" (p. 73).

CHAPTER II

In the preceding chapter Bergson has concluded that conscious states were in themselves pure quality; in the present one he inquires into these states as they combine or coalesce to form our conscious life. They then appear to form a multiplicity, although we cannot really say of our conscious life whether at a particular moment it is one or many. Multiplicity implies number which implies a homogeneous medium, space, in which numbers can be set side by side and added together. All counting involves time, but the counting which culminates in a sum involves space. Our conscious states are clearly not in space, and there must therefore be two kinds of multiplicity (1) the discrete or numerical multiplicity of things in space (2) the qualitative multiplicity of conscious states which we can count only by means of a symbolical representation in space.

Bergson is thus led to a discussion of homogeneous time and space, resulting in the conclusion that time as a homogeneous medium is reducible to space, and that time as pure duration is wholly qualitative and can be measured only by a symbolical representation in space. A discussion of motion and velocity leads to a similar conclusion. Just as there are two forms of multiplicity, so there are two forms of duration

and of conscious life. The errors of associationism come from the failure to recognise this. We are thus brought to consider the idea of duration, which is the central point of this book and indeed of Bergson's whole philosophy. As the very important questions raised in this chapter are discussed separately, it is not necessary to dwell upon them here.[1]

[1] See below, pp. 95–136.

SYNOPSIS OF CHAPTER II

The Multiplicity of Conscious States

The Idea of Duration

If the confusion of quality with quantity were limited to isolated facts of consciousness, it would create obscurities, as we have seen, rather than problems; but when it invades the series of our psychic states and introduces space into our conception of duration, it corrupts at their very source our ideas of external and internal change, of motion and freedom. Hence the sophisms of the Eleatic school; hence the problem of free will.

The idea of number implies a simple intuition of a multiplicity of absolutely similar parts or units. In counting fifty sheep we neglect their individual differences and distinguish them by the position they occupy in space. Let us suppose that the sheep are not there and that the counting is purely mental. We must then either imagine the sheep side by side in an ideal space, or call up the image of a single sheep fifty times. In the latter case the series might be supposed to lie in duration rather than in space; but this is not so. I have to retain the successive images and to place them alongside each new unit as I form it in my mind,

and this juxtaposition can take place only in space. All counting of material objects implies a simultaneous representation which implies space. But does the same intuition of space accompany the idea of abstract number?

When we count up to 50, what we have counted are moments of time rather than points in space, but that is not the whole of the matter. We can apprehend in time a succession of numbers but not an addition, *i.e.* a succession which culminates in a sum. A sum implies that each term of the series remains as we pass to the next, and waits, so to speak, until we add it to the others. This waiting we localise in space. A clear idea of number involves a visual image in space, though we may not always consciously picture it.

Every number is a collection of units and also itself a unit, a synthesis of units. The unit, which is a synthesis of units, is a multiplicity simultaneously apprehended, but the units of which it is composed appear at first sight to be units pure and simple, irreducible and indivisible. It is true that each of these units regarded alone may be considered indivisible, since I am assumed to be thinking of nothing else; but as soon as I leave it to pass to the next, I make it objective, a thing, and therefore a multiplicity. Arithmetical units are provisional units capable of indefinite division, and made up of as many parts as we care to imagine. This divisibility implies that the unit is an extended object, one in intuition but multiple in space.

The number 3 may be made up of three units of one, or of six units of a half, or of twelve units of a quarter. Each of these elements is provisionally indivisible and discontinuous and we jump from one to the other, for it is necessary, in order to obtain a number, to fix our attention in turn upon each of the units of which it is compounded. The unit is irreducible while we are thinking it and number is discontinuous while we are forming it; once formed it becomes objective and therefore infinitely divisible. Objectivity is the actual and not merely the virtual perception of subdivisions in the undivided. The subjective element in the idea of number is the indivisible process by which the mind concentrates attention in turn on the different parts of a given space; these isolated parts remain to be added to others, and when the addition has been made, they are divisible in any way and are therefore parts of space. Space is the material with which the mind constructs number, the place where the mind puts it. This is the conclusion already reached when we found that all addition implies a multiplicity of parts simultaneously apprehended. There is in both cases juxtaposition in space.

There are, then, two very different kinds of multiplicity; that of material objects such as we can see or touch, which we can count immediately within the very medium in which they come under our observation; and the multiplicity of states of consciousness which cannot be separated or counted

without the help of some symbolical representation, in which a necessary element is space. Will not this symbolical representation affect to some extent our normal perception? Let us recall what we have already said about the intensity of certain psychic states. Representative sensation is in itself pure quality; but, seen through the medium of extensity, this quality becomes in a certain sense quantity, and is called intensity. So the projection of our psychic states into space in order to form a discrete multiplicity gives them a new form. We usually think of time as a homogeneous medium in which our conscious states are ranged and placed together as in space, but such time is only a sign or symbol, absolutely distinct from real duration. The time we use for distinguishing and counting is nothing but space. Duration must be something different. To elucidate this, we must consider the ideas of space and time in their mutual relations.

We need not labour the question of the absolute reality of space. What is certain is that our senses perceive the qualities of bodies and space along with them, and we have to decide whether (1) space, or extensity, is an aspect or quality of these physical qualities, or whether (2) these qualities are essentially unextended, space coming in as a later addition but being self-sufficient and existing without them. The first hypothesis reduces space to an abstraction, or rather an extract, the element belonging to certain sensations in common. In the second case, space would be a reality as solid as the sensations them-

selves, although of a different order. Thus for Kant extensity is not an abstraction; he gives space an existence apart from its content, and his conception not only bears some resemblance to that of common sense but has forced itself, sometimes without their knowledge, on philosophers of all schools. Some empiricists regard space as resulting from the co-existence or synthesis of certain sensations which are themselves unextended and qualitative. But inextensive sensations will remain inextensive sensations, if nothing be added to them. For their co-existence to give rise to space, there must be an act of the mind which takes them in all at the same time and sets them in juxtaposition: this unique act is very like what Kant calls an *a priori* form of the sensibility.

This act consists essentially in the conception of an empty homogeneous medium. "For it is scarcely possible to give any other definition of space: space is what enables us to distinguish a number of identical and simultaneous sensations from one another; it is thus a principle of differentiation other than that of qualitative differentiation, and consequently it is a reality with no quality" (p. 95). If it is urged that simultaneous sensations are never identical, we agree; for if two points in a homogeneous surface produced the same impression, there would be no reason for our putting one to the right rather than to the left. Since we afterwards interpret this difference of quality as a difference of situation, it follows that we must have a clear idea

of a homogeneous medium, *i.e.* of a simultaneity of terms which, although identical in quality, are yet distinct from one another. What is given as qualitative heterogeneity is perceived by the activity of the mind as extensive homogeneity, but there must, no doubt, be within the qualities themselves some reason why each occupies a definite position in space. Bergson proceeds to draw a distinction between perception of extensity and conception of space; each is implied in the other, but the latter becomes clearer as intelligence increases. He illustrates this by the remarkable sense of direction in animals, which suggests that for them space is not so homogeneous as for us. There is no reason why two concrete directions should not be as immediately perceived as two colours, "but the conception of an empty homogeneous medium is something far more extraordinary, being a kind of reaction against that heterogeneity which is the very ground of our experience." The faculty of conceiving a space without quality is not the faculty of abstraction, for that already implies the intuition of a homogeneous medium. "What we must say is that we have to do with two different kinds of reality, the one heterogeneous, that of sensible qualities, the other homogeneous, namely space. This latter, clearly conceived by the human intellect, enables us to use clean-cut distinctions, to count, to abstract, and perhaps also to speak" (p. 97).

If space is the homogeneous, then any homogeneous and unbounded medium will be space, for, homo-

geneity here consisting in the absence of quality, it is hard to see how two forms of the homogeneous could be distinguished from one another. Yet time, an unbounded and homogeneous medium, is usually distinguished from space; so that the homogeneous is supposed to take a double form according as it is filled with co-existence or succession. But when we make time a homogeneous medium in which conscious states unfold themselves, we take it to be given all at once, and therefore as lacking duration. Hence time as a homogeneous medium is a spurious concept; it is time unconsciously spatialised. Nor can we admit two forms of the homogeneous without asking whether one is not reducible to the other, and *a priori* we can say that the idea of space is the fundamental one. Those philosophers who have maintained the contrary have failed to see that this bastard conception of time is a mere phantom of space haunting the reflective consciousness.

There are two possible conceptions of time, the one pure, the other infected by the idea of space. As we listen to a melody without breaking it up into its component notes, so in pure duration we have a succession of states of consciousness without distinguishing between them, a mutual interpenetration, an intimate interconnection and organisation of elements, none of which is isolated except by abstract thought, a duration which is one and yet changing. But when we unwittingly introduce the idea of space, we set our states of consciousness side by side and perceive them no longer successively but

simultaneously; we project time into space, express duration by extensity, and succession becomes a continuous line the parts of which touch one another without interpenetration. An order of succession implies distinction and comparison, and the succession becomes a juxtaposition, a simultaneity and therefore spatial. Those who attempt to deduce space from time make use of this spatialised concept of duration and assume the space they are seeking to prove. Pure duration on the other hand might be defined as a succession of qualitative changes, which mingle and interpenetrate, which have no precise boundaries and no tendency to separate from one another, no kinship with number; it is, then, pure heterogeneity. As soon as we attribute the least homogeneity to duration, we surreptitiously introduce space.

I say that a minute has elapsed, meaning that the pendulum of a clock has moved sixty times. Let us see what really happens: (1) If I picture these sixty oscillations to myself in one mental act, I exclude by hypothesis any idea of a succession. (2) If I look at them successively, just as they are produced, I have to think of each oscillation without reference to the preceding one, which no longer exists in space; I am then always in the present. There is neither succession nor duration. (3) Finally, if I join the preceding oscillation to the present one, there are two possibilities. (*a*) I may merely place them side by side, and we then return to the first hypothesis; or (*b*) I shall perceive the one

penetrating the other and the two combining like the notes of a melody to form a qualitative multiplicity. In this way I gain the idea of duration, but I have given up that of a homogeneous medium or a measurable quantity. So, too, when the regular oscillations of a pendulum induce sleep, the cause is not the last sound, nor any particular group of sounds, but the rhythmical organisation of the whole. Each increase of stimulus combines with the preceding to form, as it were, a musical phrase. If we assert that it is always the *same* sensation, we are thinking not of the sensation but of its objective cause in space. Pure duration is not a quantity, and, as soon as we try to measure it, we replace it by space.

It is extremely difficult for us to apprehend pure duration, because the external world has, it seems, a duration like our own, and time regarded from this point of view appears to be homogeneous and measurable. Further, time enters into the formulæ of mechanics, physics and astronomy. If duration cannot be measured, what is it that the oscillation of a pendulum does actually measure? Granted that inner duration, perceived by consciousness, is nothing but the melting of conscious states into one another and the gradual growth of the ego, but, it may be urged, the time of astronomers, the time measured by clocks, must be a measurable and therefore homogeneous quantity. A close examination will dispel this last illusion.

When I watch the strokes of a pendulum, I am not measuring duration but merely counting simul-

taneities. "Outside of me, in space, there is never more than a single position of the hand and the pendulum, for nothing is left of the past positions. Within myself a process of organisation or interpenetration of conscious states is going on, which constitutes true duration. . . . Thus, within our ego, there is succession without mutual externality; outside the ego, in pure space, mutual externality without succession; mutual externality, since the present oscillation is radically distinct from the previous oscillation, which no longer exists; but no succession, since succession exists solely for a conscious spectator who keeps the past in mind and sets the two oscillations or their symbols side by side in an auxiliary space. . . . There is a real space, without duration, in which phenomena appear and disappear simultaneously with our states of consciousness. There is a real duration, the heterogeneous moments of which permeate one another; each moment, however, can be brought into relation with a state of the external world which is contemporaneous with it, and can be separated from the other moments in consequence of this very process. The comparison of these two realities gives rise to a symbolical representation of duration, derived from space" (p. 108).

A moving body occupies successive positions in space, but the process by which it passes from one to another involves duration and is real only for a conscious spectator. Thus motion, as a passage, is a mental synthesis and therefore lacks extensity.

There are two elements in motion, the space traversed and the act by which we traverse it; the first (successive positions) is a homogeneous quantity, the second (mental synthesis) is a quality or intensity, with no reality except for consciousness. Bergson attributes the sophisms of the Eleatic school to a confusion of the two. The interval between two points is infinitely divisible, and if motion consisted of parts like those of the interval, the interval would never be crossed. But each step of Achilles is a simple indivisible act; after a certain number of these acts Achilles will have passed the tortoise. As space can be divided in any manner, the Eleatics thought they were entitled to reconstruct the whole movement of Achilles, not with his own steps, but with tortoise-steps, thus really comparing two tortoises which agree (*se condamnent*) to make the same kind of steps so as never to meet. "Why does Achilles outstrip the tortoise? Because each of Achilles' steps and each of the tortoise's steps are indivisible acts in so far as they are movements, and are different magnitudes in so far as they are space: so that addition will soon give a greater length for the space traversed by Achilles than is obtained by adding together the space traversed by the tortoise and the handicap with which it started" (p. 113). So Zeno confused space and motion. Much philosophical ingenuity has been expended over this classic puzzle, but there is no need to imagine a limit to the divisibility of concrete space, when we can distinguish between the simultaneous positions

of two moving bodies, which are in space, and their movements, which are not. Mathematics can calculate the simultaneous positions of Achilles and the tortoise at a given moment, or the point at which they will meet, this being also a simultaneity, but it cannot make movement out of any number of immobilities, nor time out of space. Just as in duration there is nothing homogeneous except that which lacks duration, namely space; so in motion there is nothing homogeneous except the traversed space, which is motionless.

For this reason science cannot deal with time and motion except by omitting their essential element. Writers on mechanics are careful to say that they do not define duration itself but only the equality of two durations. We can mark the time when motion begins (*i.e.* the simultaneity of an external change with one of our psychic states) and the time when it ends (a similar simultaneity) and we can measure the space traversed. Duration does not enter into our calculations at all. If all the movements of the universe went twice as fast, we should not need to alter our formulæ.

An analysis of velocity leads to similar conclusions, which might indeed have been foreseen from the simple facts that mechanics necessarily deals with equations and that algebraical equations always express something already done, whereas the essence of duration and motion is something that is unceasingly being done.

We conclude, then, that space alone is homo-

geneous, that objects in space form a discrete multiplicity, and that every discrete multiplicity is arrived at by a process of unrolling in space. There is in space neither duration nor even succession; each of the so-called successive states of the external world exists by itself, and their multiplicity has no reality except for a consciousness which can retain them and set them side by side. The space employed for this purpose is just that which is called homogeneous time.

We further conclude that the multiplicity of conscious states has nothing in common with the discrete multiplicity which goes to form a number. Consciousness may distinguish without counting, and we have then multiplicity without quantity; or it may be concerned with a multiplicity of terms which are counted or are conceived as countable, and then it develops them in space. A melody is a qualitative multiplicity as long as we are conscious of it purely as melody, but when we begin to count or separate the notes it becomes a discrete multiplicity. It is difficult to express the distinction in ordinary language. When we talk of several states of consciousness blending, the word "several" has already severed the states, isolated them and spatialised them. Thus a qualitative multiplicity, though clear enough for pure reflective thought, cannot be translated into ordinary language. Even a discrete multiplicity cannot be thought without admitting the idea of a qualitative multiplicity, for in adding units there is always in the mind a connecting of them with one another. We regard

the units as identical, *i.e.* place them side by side in a homogeneous medium, but the addition of them is impossible without a certain mutual interpenetration and a progress in some degree qualitative.

It is then clear that without some symbolical representation time would never appear to us as a homogeneous medium in which the terms of a succession can be separated from one another. In motion we have a series of identical terms, since the moving body is always the same; but the synthesis formed by consciousness between the present position and what our memory calls the previous positions makes these images interpenetrate, complete and continue one another. Hence it is by the aid of motion in particular that duration assumes the form of a homogeneous medium and that time is projected into space; but in the absence of motion repetition might equally suggest to consciousness the same mode of representation. Conscious life presents itself under a double aspect, according as it is perceived directly or by refraction through space. Our ego comes in contact with the external world at its surface, and our superficial psychical life comes to be pictured as set out in a homogeneous medium, but when we consider the inner self which feels, deliberates and decides, we see that its states cannot be separated in space without undergoing a deep alteration. But the two selves form one person, and duration therefore seems to be the same thing for both.

That our ordinary conception of duration is due to the gradual invasion of pure consciousness by

space may be seen from what happens in dreams. Then the ego is no longer in touch with external objects. We no longer measure duration but feel it; from quantity it returns to the state of quality; in place of a mathematical estimate of time we have a confused instinct, which, like all instincts, is capable of gross absurdity but also at times of extraordinary skill. Even in the waking state, experience ought to teach us to distinguish between duration as quality, such as consciousness immediately apprehends it, and materialised time which has been made quantitative by development in space.

"We should therefore distinguish two forms of multiplicity, two very different ways of regarding duration, two aspects of conscious life. Below homogeneous duration, which is the extensive symbol of true duration, a close psychological analysis distinguishes a duration whose heterogeneous moments permeate one another; below the numerical multiplicity of conscious states, a qualitative multiplicity; below the self with well-defined states, a self in which *succeeding each other* means *melting into one another* and forming an organic whole" (p. 128). But the latter, the fundamental self, is often lost sight of in ordinary life, and a vigorous effort of analysis is necessary to recover it. Our external and, so to speak, social life has more practical importance for us than our inner and individual existence. Our instinct is always to solidify our impressions in order to be able to express them in language.

If this is true of impressions, it is still more true of simple sensations. I may to-day dislike a flavour which I liked as a child, but I still give the same name to the sensation, and speak as though it had remained the same while my taste had changed. But really there are neither identical sensations nor multiple tastes. Every sensation becomes modified by repetition, but it may not appear to me to change from day to day because I identify it with its cause or its name. The delicate and fugitive impressions of our individual consciousness are thus often tyrannised over by mere brutal words.

Bergson proceeds to show the difference between a sentiment felt and a sentiment analysed—a beautiful passage which should be read in full (p. 132). Such a substitution of dissociated elements for the real web of consciousness leads directly to the errors of associationism, which will be discussed later. The obstinacy with which we cling to opinions of which we can give no rational account shows that our intellect has its instincts, a force (*élan*) common to all our ideas, their very interpenetration, something belonging to our real selves. Each of these ideas is individual; they are not the same for others as they are for us, and they are modified by anything which modifies the self in general. Many of our ideas, however, such as those we accept ready made, are never really assimilated; they float on the surface of the inner self, like dead leaves on the water of a pond; and, being more or less impersonal, they tend to take the form of a numerical multi-

plicity and to spread out in a homogeneous space. They can be adequately expressed in words and are associated by contiguity or for some logical reason, and to them only does the associationist theory apply.

The deep-seated conscious states have no relation to quantity; they are pure quality; they intermingle in such a way that they cannot even be called one or many. The duration which they thus create is a duration whose moments do not form a numerical multiplicity. Little by little they become transformed into objects or things, and are detached from one another and even from ourselves. Thus is formed a second self which obscures the first; not that personality can be split up, for it is always one and the same self which first perceives these distinct states and which, by afterwards concentrating its attention, sees them melt together like snowflakes on the hand. A superficial psychology may even describe them without falling into error, provided that it does not present to us the concrete and living self as an association of terms which are distinct from one another and are set side by side in a homogeneous medium.

CHAPTER III

Bergson points out that science has made for its own purpose, the study of external things, a very sharp separation between duration and extensity. It has retained only simultaneity and immobility, or in other words space. He proposes for his purpose, the study of inner phenomena before they are separated or set out in space, to make a similar separation, and to retain only duration. "Duration, thus restored to its original purity, will appear as a wholly qualitative multiplicity, an absolute heterogeneity of elements which pass over into one another."

In the introduction to Chapter I it was noticed that this sharp contrast might lead to difficulties. It is not necessary to repeat what was then said, but it may be noted that the assumption which Bergson makes (in *Time and Free Will*) that there are two distinct spheres of reality, the psychical and the physical, as though each could be understood apart from the other, has given rise to much of the criticism which has been directed against his philosophy. We must remember that the division is in some sort artificial and temporary.

If the separation were definitive, there would be no degrees of freedom. But if we are to understand

freedom, the separation must be made, at least provisionally. Both those who deny and those who maintain freedom are usually ready to assume that all the conditions can be conceived as given in advance, that is, they treat duration as a homogeneous medium and qualities as quantities; all arguments about, and definitions of, freedom confuse time with space and succession with simultaneity. If we start from duration, we can get a clear idea of freedom; if we start from space, we can see nothing but determination.

It is very much more difficult to make the separation from the side of duration, because our inner life is so much bound up with our social life and everyday needs that we have an inveterate habit of objectifying and spatialising our interpenetrating conscious states as distinct things to which we can give names. Hence there are two selves; the self in relation to its environment, when consciousness is concerned with action and therefore with extensity; and the self whose inner states we reach by introspection, when we see them as living things, permeating and interpenetrating one another, always *becoming*, always enduring but never distinct. Such moments of introspection are rare, and we are therefore rarely free.

SYNOPSIS OF CHAPTER III

The Organisation of Conscious States

The Problem of Free Will

It is not difficult to see why the question of free will divides the two contrasted systems, mechanism and dynamism. The latter starts from the idea of voluntary activity and has no difficulty in conceiving free force on the one side and matter governed by laws on the other. But mechanism follows the opposite course. It assumes the materials with which it deals to be governed by necessary laws, and never quits the narrow circle in which it has shut itself up. Law is not the same thing for the two systems. Dynamism can imagine facts which elude the control of law; for it the fact is the absolute reality and the law a symbolical expression. Mechanism regards the fact as constituted by laws, and the law becomes the fundamental reality. The one seeks real affiliation, the other simplicity. And yet the idea of spontaneity is simpler than that of inertia, since the latter can be understood or defined only by means of the former, while the idea of spontaneity is self-sufficient. Each of us has, as a matter of fact, an immediate feeling, real or illusory, of his own free spontaneity, without the idea of

inertia entering into this feeling. But inertia cannot be defined without reference to the idea of activity, as, for instance, when it is said that a body cannot move itself or stop itself, etc.

But definite facts, both physical and psychological, are urged against freedom. Sometimes it is asserted that our actions are necessitated by our feelings, our ideas and the whole preceding series of our conscious states; sometimes that freedom is incompatible with the fundamental properties of matter, and in particular with the principle of the conservation of energy. Hence two kinds of determinism, two apparently different demonstrations of necessity. We shall show that the second is reducible to the first, and that all determinism, even physical, implies a psychological hypothesis; further, that psychological determinism itself, and even the refutations which are given of it, depend upon an inexact conception of the multiplicity of conscious states, or rather of duration. We shall see a self emerge whose activity cannot be compared to that of any other force.

Physical determinism is bound up with mechanical or rather kinetic theories of matter. The universe is regarded as a heap of matter, resolved by the imagination into molecules and atoms, to whose movements all physical phenomena may be reduced. The matter of our bodies is subject to the same laws, and even the nervous system is nothing more than molecules and atoms in motion. The brain at a given moment is modified by the shocks

which the nervous system receives from surrounding matter; hence our ideas etc. are mechanical resultants of outside shocks and existing movements. On the other hand our organism may react on its environment; hence reflex movements and also the actions called free. The principle of the conservation of energy being assumed to be inflexible, there is no atom, either in our nervous system or in the whole universe, whose position is not determined by the sum of the mechanical actions which the other atoms exert upon it. A mathematician, who knew the position of the molecules or atoms of a human body at a given moment and also the position and motion of all the atoms of the universe capable of influencing it, could calculate with infallible precision the past, present and future actions of the person as easily as he can predict an eclipse of the sun.

The above conception, we acknowledge, is a very natural deduction from the law of the conservation of energy. If this law applies to all the processes of all living bodies, it matters little what hypothesis we adopt as to the nature of the ultimate elements of matter, for, whatever these may be, their position at a given moment would be rigorously determined by what their position was at the preceding moment. Bergson now proposes to show that even this hypothesis does not involve an absolute determination of our conscious states by one another, and, further, that the universality of the principle of the conservation of energy itself cannot be admitted except in virtue of some psychological hypothesis.

For it would be necessary, in the first place, to show that to a given cerebral state there corresponds a rigorously determined psychical state, and this has not yet been demonstrated. It is true that a relation exists between certain sensations and their causes, but no one supposes that we are free in regard to these, and to extend the parallelism to our consciousness as a whole is to cut the knot of the problem of freedom *a priori*. Such a course has been taken even by great thinkers, but not for reasons of a physical order. Leibniz ascribed the correspondence to a pre-established harmony. Spinoza held that modes of thought and modes of extension correspond with but never influence one another. Physical determinism represents consciousness as sometimes and somehow disengaged like a phosphorescence from the molecular movements of the brain, but it has never been shown and never will be shown that the psychical state is necessarily determined by the molecular movement. Experience has established a parallelism in a certain number of cases of no great importance for the problem of freedom, and it is easy to understand why physical determinism extends the connexion to all possible cases.

We know that the greater part of our actions can be explained by motives, but determination here does not mean necessity since common sense believes in free will. Associationist determinism appeals to this knowledge of ours, and, although a determinism of quality, seeks to ally itself with the mechanism

of natural movements. By this alliance it becomes more rigorous, and physical mechanism acquires universality. The union is favoured by the fortunate circumstance that sensations appear to be bound up with molecular movements and the bond is extended to include all consciousness. The physical determinism thus reached is nothing but psychological determinism seeking to verify itself scientifically.

Still, a rigorous application of the principle of the conservation of energy would greatly restrict freedom, for it would determine our movements, if not necessarily our ideas; and we must therefore inquire whether this principle ought to be regarded as a universal law. If certain terms are given, the result will always be the same however the sum be worked. Science will always be subject to this law which is a logical law, but it does not follow that everything lends itself to calculation. It may be admitted that the principle of the conservation of energy appears to be applicable to all physico-chemical phenomena, but it is always possible that we may find side by side with kinetic energy and potential energy some new form of energy distinguished from the other two by the fact that it cannot be calculated. Nor would science lose any of its rigour on that account. The most thorough-going mechanism regards consciousness as an epiphenomenon, something added on, in given circumstances, to certain molecular movements. But if the latter can create sensation out of a zero of consciousness (*avec un néant de conscience*), why should not con-

sciousness in its turn create movement either out of a zero of energy or by utilising this energy in its own way?[1] Further, the law of the conservation of energy always applies to systems which are reversible, at any rate in theory. Time does not affect (*n'a pas de prise sur*) them, but it is quite otherwise in the domain of life. Here duration certainly seems to act like a cause, and the idea of reversibility becomes absurd, since living beings never experience it. Even if the absurdity is in this case only apparent, it will be agreed at any rate that reversibility is meaningless in the sphere of consciousness. A sensation, if prolonged, may become unbearable; the same does not here remain the same, but strengthens and swells (*se grossit*) with all its past, and this past is a reality for all living bodies perhaps, and certainly for conscious beings. A material system, on the contrary, exists in an eternal present. There is thus a presumption in favour of the hypothesis of a conscious force or free will, which, subject to the action of time and storing up duration, may be thereby exempt from the law of the conservation of energy.

[1] The epiphenomenalists cannot have it both ways. If consciousness is a by-product of cerebral movements it implies an expenditure of energy, for even a by-product cannot be regarded as other than a product. But science cannot regard consciousness as part of the system of movements, for that system is complete without it. It is thus led to look on consciousness as a mysterious nothing. If it took what appears to be the more reasonable view that consciousness is a form of energy which cannot be calculated, it would be compelled to admit that this form of energy might originate movements as well as result from them. Bergson discusses epiphenomenalism in *Matter and Memory*.

If we say that the principle of the conservation of energy should be applied to the totality of phenomena so long as psychological facts have not disproved it, we are making an unwarranted assumption and are ignoring what appears to be the fundamental difference between the inner and the outer worlds. The most that can be justifiably asserted is that the law *may* some day be extended to cover all phenomena. Science, properly so-called, has nothing to do with the matter; we are confronted by an arbitrary confusion of two conceptions of duration which Bergson at any rate believes to differ profoundly. So-called physical determinism is therefore reducible to psychological determinism; and the latter must now be examined.

Psychological determinism, as currently held, implies an associationist conception of mind. Our present state of consciousness is regarded as necessitated by our previous states, but not as deducible *a priori*, since it and they differ in quality. Reference is therefore made to experience, which, we admit, shows a relation between the two. This relation *explains* the passage from one state to another, but does it cause it?

A hypnotic subject told to perform an action at a certain time thinks that the action is brought about by the preceding series of his own conscious states. These, however, are not causes but effects; the future action has determined the psychic states from which it is supposed to proceed. Similar instances show that effects sometimes precede their causes,

and that there are phenomena of psychical attraction which are not amenable to the known laws of the association of ideas.

Associationist determinism represents the self as a collection of psychic states in which the strongest prevails. There is said to be a conflict of motives, or even a conflict between the self desiring a pleasure and the self fearing remorse. Pains and pleasures are weighed as though they had an existence of their own, and this is done even by opponents of determinism. Such a practice, due to difficulties of verbal expression, may lead to grave confusion.

The scent of a rose brings to me vague memories of youth; for me it is more than a scent; it is a scent charged with memories. Not so, perhaps, for others. You may reply that it is, in any case, the same scent but associated with different ideas. I am quite willing that you should express yourself in this way; but, remember what you have done; you have first removed the personal element from the different impressions which the rose makes on each one of us and have retained only the objective aspect, that part which is common to all and thereby belongs to space. Then, to distinguish my impression from yours, you have to add specific characteristics to the general idea of rose-scent, and you now say that our different impressions are due to an association of rose-scent with different memories. But the association of which you speak hardly exists except for you, and as a method of explanation.

We are thus brought back to our former distinc-

tion between a multiplicity of juxtaposition and a multiplicity of mutual interpenetration. A feeling or idea contains an indefinite plurality of conscious states, but the plurality is not observed unless it is spread out in space. The terms then become external to one another; they are states of consciousness no longer, but their symbols, or rather the words which express them. "There is, as we have pointed out, a close connexion between the faculty of conceiving a homogeneous medium, such as space, and that of thinking by means of general ideas. As soon as we try to give an account of a conscious state, to analyse it, this state, which is above all personal, will be resolved into impersonal elements external to one another, each of which calls up the idea of a genus and is expressed by a word. But because our reason, equipped with the idea of space and the power of creating symbols, draws these multiple elements out of the whole, it does not follow that they were contained in it. For within the whole they did not occupy space and did not care to express themselves by means of symbols; they permeated and melted into one another. Associationism thus makes the mistake of constantly replacing the concrete phenomenon which takes place in the mind by the artificial reconstruction of it given by philosophy, and of thus confusing the explanation of the fact with the fact itself" (p. 163).

The associationist theory is applicable only to sensations which are quite simple and, so to speak,

impersonal. My hate is different from your hate, my love from your love; each reflects an entire personality, but language uses the same word to denote them both. A novelist may attempt to make us understand them in their original and living individuality, but he will never succeed in pourtraying completely what the soul really feels. Thought and language remain incommensurable. The self cannot rightly be described as an aggregate of conscious states. A single feeling represents the entire soul, in the sense that the whole content of the soul is reflected in it. To say that it determines the soul is then to recognise the fact that the soul determines itself. The associationist with his gross psychology, the dupe of language, reduces the self to an aggregate of sensations, feelings and ideas—a mere phantom ego, unless these states are coloured by a personality, and then their association is no longer needed, since the whole personality exists in a single one of them, provided that we know how to choose it. "And the outward manifestation of this inner state will be just what is called a free act, since the self alone will have been the author of it, and since it will express the whole of the self. Freedom, thus understood, is not *absolute*, as a radically libertarian philosophy would have it; it admits of degrees" (p. 166). Many feelings and ideas make no impression on the fundamental self, but tend to form a parasitic self which continually encroaches upon the other. So men may live and die without knowing real freedom, which must be an act of the whole soul.

Thus understood, free acts are rare, even on the part of those who are most accustomed to self-observation and rational conduct. In much of our daily life we may be conscious automata and our actions, though intelligent, will be of the nature of reflex movements, and to these the associationist theory applies. They combine to form the substratum of our free activity, just as our organic functions do for the whole of our conscious life. Even in grave matters we may abdicate our freedom, as when we allow ourselves to be controlled by the advice of friends. We think we are acting freely and only recognise our mistake on reflection But there is often a revolt before action is taken, and the real self breaks through. Hence the difficulty of explaining a sudden change of resolution. We cannot find a reason for it, though the best of reasons may be there—the force of our whole past experience. "For the action which has been performed does not then express some superficial idea, almost external to ourselves, distinct and easy to account for: it agrees with the whole of our most intimate feelings, thoughts and aspirations, with that particular conception of life which is the equivalent of all our past experience, in a word, with our personal idea of happiness and of honour" (p. 170). We therefore see the futility of looking for examples of freedom in insignificant actions which can be shown to be bound up with some determining motive.

It is difficult to see, on determinist principles,

why an unchanging self confronted by two unchanging feelings should ever come to a decision at all, or why it should hesitate over it. The truth is that the self is always changing and is consequently always modifying the feelings, and there is formed a dynamic series of states which culminates in a free act. The determinist picture of two forces acting on an unchanging self is a mere symbolical representation.

In short, we are free when our acts come from our entire personality, when they express it, when they bear to it that indefinable resemblance which we sometimes see existing between the artist and his work. It is useless to say that we are then yielding to our character. Our character is ourselves, and is modified day by day, by all the experiences we make really our own. The act which bears the mark of our personality is truly free. But the determinist usually leaves the act itself and seeks refuge in the past or the future.

When we suppose, says J. S. Mill, that we might have acted differently, we are supposing a difference in the antecedents; and he naturally goes on to see in consciousness a guide to what is and not to what might be. Determinists, further, maintain that, given certain antecedents, only one result is possible.

Taking the latter point first, Bergson discusses at length the position of a man hesitating between two courses, and concludes that both those who maintain and those who deny that he could have acted differ-

ently if he had wished, are guilty of a confusion of time with space. For once the act has been completed, it ceases to be a time-process, and the line drawn in space by which we represent it signifies not time which is passing, but time which has passed. The arguments of both determinists and indeterminists in this connexion are reducible to the equally puerile statements, that an act once performed is performed; and that an act before being performed was not yet performed. The question of freedom emerges intact, for the reason that freedom must be sought in a certain nuance or quality of the action itself, and not in the relation of this act to what it is not or to what it might have been. Both sides represent the deliberation as an oscillation in space, whereas it is really a dynamic progress in which the self and its motives are in a constant state of becoming, like real living beings. The self feels and declares its freedom, but when it seeks to explain it to itself, it no longer perceives itself except by a kind of refraction through space.

But determinism returns to the attack, and, setting aside accomplished actions, asks us to consider future ones. Could a superior intelligence which knew all the antecedents predict with absolute certainty the decision that would result from them? We must first distinguish between a probable result and an infallible prediction. Every one acts more or less in accordance with his character, that is his past, and his character though always changing rarely changes quite suddenly. To say

that his action will be in harmony with his character is quite a different thing from predicting the future. Determinists, however, maintain that a complete knowledge of all the antecedents would make the prevision infallible.

In a careful analysis Bergson shows that A would not be in a position to predict the action of B unless their souls had had the same history and their experience had been exactly similar, in which case A and B could not be distinguished from one another. They must be one and the same person, and therefore, when the time for action comes, there is no longer any question of predicting but simply of acting.[1] The question of freedom again emerges intact.

The difficulty rests on two illusions of the reflective consciousness (1) that intensity is a mathematical property of psychic states (2) that we can replace the concrete reality, or the dynamic progress which consciousness perceives, by the material symbol of this progress when completed. When the act is accomplished I can, of course, assign their proper value to all the antecedents and call their interplay a conflict. But to ask whether, the antecedents being known, I can predict the result is to enter a vicious circle; to forget that we cannot know the value of the antecedents unless the final act is given; and to suppose wrongly that the symbolical diagram by which the completed act is represented has been automatically drawn by the act itself in the

[1] If A is B, will A act as B acts?—a nonsensical conundrum.

course of its progress. These illusions imply a third, that of spatialised time. The terms of the problem materialise the conditions; future time becomes a route traced but not traversed.

The confusion is natural, indeed almost inevitable, since science appears to embrace future time in, for instance, astronomical prediction, but the very reasons which make astronomical prediction possible make prediction of conduct impossible. If the whole of the movements of the universe went twice as fast, there would be no difference in the equations we use to predict them, for these equations are concerned only with the relation between two durations, *i.e.* with simultaneities. The intervals between the simultaneities count for nothing, but with consciousness the intervals are all-important; they are time lived, duration. The astronomer confines himself to establishing a series of relative positions, of simultaneities and coincidences, of numerical relations; duration, properly so called, does not enter into the calculation and exists only for a consciousness capable of living the intervals between the simultaneities. The astronomer's time is a number whose units may be regarded as infinitely small, provided that the whole operation is controlled by the same hypothesis. He thus represents future time as present, and says that he has foreseen when he has really only seen.

But the psychologist is concerned with the real time, with the intervals and not with their extremities. Consciousness does not measure time, but none the

less a longer feeling is for it a different feeling. States of consciousness are living things and change without ceasing; to cut down their duration by a moment impoverishes them and modifies their quality. No feeling can be properly appreciated unless we have passed through all its phases and lived the whole duration.

When we call to mind the past, a series of *faits accomplis*, we are following the scientific use of time. Astronomical prevision is comparable to such a recollection of a past state of consciousness, not to the anticipation of a future state. Future duration cannot be abridged; it can only be lived. Foresight, sight and action here all amount to the same thing.

The determinist, driven to his last ditch, will now maintain that every act is determined by its psychical antecedents, or in other words that facts of consciousness like natural phenomena are subject to laws. He refuses to enter in detail into concrete psychic states lest he find there phenomena which defy all symbolical representation, and consequently all prevision. He is content to assert that as phenomena they are subject to the law of causality, that like causes produce like effects.

This is to assume that the same cause or series of causes can recur in consciousness, but our conception of duration affirms the radical heterogeneity of deep-seated psychic states and the impossibility of a complete resemblance between any two of them, since they are two different moments of a

history. History never repeats itself; the same moment never comes twice; a feeling repeated is a new feeling. Any resemblance between two psychic states is delusive, and what causal relation there may be cannot be like natural causation. As the conditions are never the same, the effect must always be different.

As the determinist may still reiterate that an act is indissolubly bound up with its antecedents, we must now examine the concept of cause, show the equivoque therein contained and so perhaps reach a less negative idea of freedom than that with which we have hitherto been content.

Physical phenomena obey laws: this implies (1) that certain phenomena, *a*, *b*, *c*, *d*, may recur under the same form, and (2) that a phenomenon *P*, which appeared after the conditions *a*, *b*, *c*, *d*, and after these conditions only, will always be reproduced when the same conditions are repeated. If this were all that causation implied, as empiricists maintain, it would prove nothing against freedom. For it would be understood that there is determination wherever experience shows us this regularity of sequence, but the whole question at issue is whether such a regularity is found in the domain of consciousness. No regular succession between deep-seated states of consciousness has in point of fact been shown, since we still fail to predict. But empiricists really give a new meaning to the word cause, the one it has for common sense.

The regular succession of two phenomena means

that, the first being given, the second is already perceived. This is too subjective for common sense, which imagines that if the idea of the second phenomenon is already implied in that of the first, it must follow that the second exists objectively, in some form or other, within the first. The causal relation is pictured as a kind of preformation or prefiguring of the future phenomenon in the present conditions. This prefiguring may be understood in two very different ways, and it is here that the equivoque begins.

(1) An unlimited number of theorems may be said to be contained in the definition of a circle, waiting there for the mathematician to deduce them. The first equation may be transformed into a multitude of new equations, all virtually pre-existing in it. We are here dealing with pure quantity. Physical phenomena, on the other hand, have quality too, but, because their qualitative differences are perceived by the senses, we are led to imagine a homogeneous physical universe behind the heterogeneity of our sensations. Colour, heat, resistance and even weight are stripped off until we find ourselves confronted with homogeneous extensity, space without body; and we then proceed to explain the apparent qualities of matter by the shape, position and motion of geometrical figures. Shape, it is true, however tenuous and transparent we may suppose it, constitutes a concrete and therefore irreducible quality of matter. Let us get rid of it and substitute the abstract formula of the move-

ment which engenders it. By this method of abstraction we reach an entanglement of algebraical relations, whose very complexity produces the effect of concrete, visible and tangible reality—and we shall then have followed out the consequences of the principle of causation, understood as an actual prefiguring of the future in the present. Thus the concrete existence of natural phenomena tends to vanish in algebraical smoke.

Understood in this way, the relation of causality is a necessary relation in that it will indefinitely approach the relation of identity, as a curve its asymptote. The principle of identity is the absolute law of our consciousness. It binds only the present to the present. But the principle of causality, as binding the future to the present, can never take the form of a necessary principle; no logical effort will succeed in proving that what has been will be or will continue to be. Hence the introduction by Descartes of a grace of Providence continually renewed, and the doctrine of Spinoza that the relation of apparent causality between phenomena was equivalent to a relation of identity in the absolute. Both agreed with modern scientific theories in seeking to establish a relation of logical identity between cause and effect.

The more the effect seems to be necessarily bound up with the cause, the greater the tendency to put it in the cause itself, as a mathematical deduction in its principle, and so to suppress the effect of duration. The more we tend to erect the causal

relation into a necessary determination, the more do we affirm that things have not duration as we have, and so we accentuate the difference between a psychical series and a physical series. Hence the apparently paradoxical result that, the more we believe in physical determination, the greater should be our faith in human freedom. The last point need not detain us; our object has been to bring out the first meaning of the word causality, and to show that the prefiguring of the future in the present is easily conceived under a mathematical guise, thanks to a certain conception of duration which, without seeming to be so, is fairly familiar to common sense.

(2) But there is a prefiguring of another kind, still more familiar because drawn from our own consciousness. This second form comes from the sense of effort, a peculiar feeling which unites our idea and our act so continuously that it is difficult to say where one begins and the others end. This prefiguring is imperfect, because the action is regarded not as realised but as realisable; we can still stop. From this conception of the causal relation it follows *a priori* that the effect is not given in the cause; it is only a possibility.

The second conception of the relation is more natural than the first. We imagine the causes of things as analogous to our own states of consciousness; give a vague personality to the material universe; and view changes as taking place in virtue of some internal push or effort. Such was

the ancient hylozoism,[1] which leads to the monadism and pre-established harmony of Leibniz, as the first conception of the causal relation leads to the doctrine of Spinoza.

This dynamic conception of the causal relation does not necessarily involve the determination of effects by their causes. It attributes to things a duration like our own, and the future is no more bound up with the present in the external world than it is in our own inner life. As all phenomena, both physical and psychical, are here regarded as having duration, the future exists in the present only as idea, and the passage from the one to the other takes the aspect of an effort, which does not always accomplish the end conceived. In the first conception of causation duration is regarded as peculiar to consciousness; things do not have it, but change mathematically. In either case human freedom is safeguarded, for the one puts contingence into natural phenomena, and the other implies that the self is free since it has duration.

Unfortunately the principle of causation is often taken in both senses at once. Sometimes we have specially in mind the regular *succession* of physical phenomena and the kind of internal effort by which

[1] "A half-hearted and even contradictory hypothesis, which left matter its extensity although attributing to it real conscious states." "Ancient hylozoism . . . explained the regular succession of causes and effects by a real *deus ex machina:* sometimes it was a Necessity external to things and hovering over them, sometimes an inner Reason acting by rules somewhat similar to those which govern our own conduct" (pp. 213, 214).

one *becomes* another; at others, their absolute *regularity* and the mathematical necessity into which this regularity gradually passes. The blending of the two leads to inextricable difficulties. The idea of force, which really excludes that of necessary determination, becomes associated with the idea of necessity. As far as experience goes, we feel ourselves free and regard force, rightly or wrongly, as a spontaneity. But when the idea of force has been corrupted by association with the idea of necessity, it is looked upon as absolutely determining coming effects. There is thus a double confusion; mechanical determination assumes the same form as the dynamic relation of our own force to the act to which it gives rise; and, in return, human action is considered as resulting mechanically, and therefore necessarily, from the force which produces it. The fusion is no doubt convenient for common sense, since it has no need to discriminate.

But science is more rigorous. The physicist may speak of *forces*, and even picture their mode of action by analogy with an inner effort, but he will strictly exclude such a confused idea from his scientific explanations. He regards the relation of external causation as mathematical and as in no way resembling the relation of a psychical force to the act arising from it.

The relation of internal causality is purely dynamic. External phenomena repeat themselves, and a law can be deduced from the repetition. Psychic states are unique and never reappear. Thus the psychological

analysis with which we began is confirmed by our study of the notions of causality and duration, viewed in themselves.

We can now formulate our conception of freedom.

"Freedom is the relation of the concrete self to the act which it performs. This relation is indefinable, just because we *are* free. For we can analyse a thing, but not a process; we can break up extensity, but not duration. Or, if we persist in analysing it, we unconsciously transform the process into a thing and duration into extensity. By the very fact of breaking up concrete time we set out its moments in homogeneous space; in place of the doing we put the already done; and, as we have begun by, so to speak, stereotyping the activity of the self, we see spontaneity settle down into inertia and freedom into necessity. Thus, any positive definition of freedom will ensure the victory of determinism" (p. 219).

Bergson then discusses several definitions of freedom, and shows that in each case we have to ask whether time can be adequately represented by space. He answers—Yes, if it is past time; No, if you are speaking of time that is passing. The free act takes place in the latter, not in the former. All the difficulties of the problem, and even the problem itself, arise from a previous confusion of duration with extensity, of succession with simultaneity, and of quality with quantity. It is useless to attempt to render the idea of freedom in a language into which it is clearly untranslatable.

NOTES ON TIME AND FREE WILL

I. TIME AND SPACE

As Bergson makes frequent reference to Kant's doctrine of time and space, it may be useful to begin with a concise statement of what Kant says about them.[1]

They are described in the Transcendental Æsthetic as *a priori* forms of our sensibility, the forms without which sensuous experience would be impossible. A stream of hogs, jostled together in indistinguishable confusion, enters a Chicago pork factory and emerges in a well-ordered succession of hams, gammons and tins of brawn. So reality enters our sensibility and emerges as phenomena successive in time and separated in space. A ray of light falls upon a prism and comes out as all the colours of the rainbow. These illustrations are not exact and are not Kant's, but they may serve to give an idea of his meaning. Our sensibility, like the factory or the prism, imposes its forms of time and space on the sensations which it passively receives. There is some question as to whether Kant meant that our sensations are caused directly by the "thing-in-itself," but the point is not material in connexion with his theory of time and space.

[1] Writers on Kant differ in their interpretation of his doctrine of time and space. An easy introduction will be found in A. D. Lindsay, *The Philosophy of Kant.* (People's Books).

Kant regards a phenomenon as having two elements (1) the matter given to us *a posteriori* by powers we know not what; it reaches us empirically, as sensation; (2) the forms which lie *a priori* in the mind. These pure perceptions are two, time and space, and they impose their form on sensations given to us *a posteriori* and so produce external experience. We cannot possibly imagine no space, although we can very well imagine a space empty of objects. Space is therefore a condition of the possibility of external phenomena; without the idea of space already present in the mind they could not exist for us. Similarly with time, for without the *a priori* idea of time in the mind we could not know things as having duration, succession or simultaneity. We represent the succession of time by a line drawn to infinity. Space is an *a priori* condition of external phenomena; time an *a priori* condition of all phenomena, immediately of internal or psychical, and mediately of external. Time and space are not receptacles existing in themselves within us, but active functions for placing our sensations in a certain order; they are empirically real and transcendentally ideal.

Some confusion has arisen from Kant's use of the word space with different meanings (1) as a form of the sensibility, (2) as the *receptaculum* in which common sense and science imagine objects to exist. Nor is he always consistent; for in discussing the relation of space to parts of space or spaces, he tells us in one place that space is not a *compositum* but a *totum*, because the parts are only

possible in the whole, and not the whole through the parts; in another place he says that space is not a *totum* but a *compositum ideale*, for the idea of the part makes the idea of the whole possible and therefore necessarily precedes it. Dr. Ward finds a third view in Kant's writings, that pure or absolute space is not the presupposition of spatial experience, but the consequence of idealising this, and that, in keeping with such a doctrine, we can say that space is both a *compositum* and a *totum*. When Kant says that "we can never imagine that there is no space, although we can quite well think that no objects are *met with* in it," Dr. Ward[1] italicises the words, and holds that they imply someone traversing space and that without this someone there would be nothing left of pure space, for movement is an essential element in our spatial experience. The transition from spatial perception to spatial conception is a passage from the actual experience of spatial relation to the bare idea of pure space. The latter is a conceptual ideal which we can deduce from the former, but not *vice versa*. Pure space "is absolutely relative,—a system of relations without a *fundamentum relationis*, and so a non-entity." Common sense and science presuppose space when they speak of it as a *receptaculum* which can be either full or empty, and which is, in fact, partly the one and partly the other. Our first experience is of bodies that are extended;

[1] *Naturalism and Agnosticism*, ii. 137. See also "Psychology" in *Encycl. Brit.* 1911.

hence space is not prior to or independent of the objects which are said to be contained in it. Pure space is an ideal; it is the work of the mind; has ideality and validity but not reality, and is based on concrete experiences.

Bergson notes that Kant has not questioned that the notion of space may be given empirically by sight and touch, but we have the remarkable fact that our mind "cuts out in it, *a priori*, figures whose properties we determine *a priori:* experience, with which we have not kept in touch, yet follows us through the infinite complications of our reasonings and invariably justifies them." Thus extension cannot be an attribute of the same kind as heat, weight, etc., for in the case of the latter we must have recourse to experience. Kant has made this quite clear. He represents intelligence as bathed in an atmosphere of spatiality, through which our perceptions pass before reaching us. "They have been impregnated in advance by our geometry, so that our faculty of thinking only finds again in matter the mathematical properties which our faculty of perception has already deposed there" (C. E. p. 215). Matter yields to our reasonings, because, so far as it is intelligible, it is our own work. Of the thing-in-itself we can know nothing, since we only get its refraction through the forms of our faculty of perceiving. Such is Kant's doctrine of the ideality of space, which enables him to refute "empiricist" theories of knowledge.

Bergson agrees with Kant's doctrine in what it

denies but not in what it affirms. Kant's space as a ready-made form is "a veritable *deus ex machina*, of which we see neither how it arises, nor why it is what it is rather than anything else." And his "things-in-themselves" with their projection into our perceptive faculty of a "sensuous manifold" capable of fitting it exactly suggest a pre-established harmony—an idle hypothesis, which Kant was right in wishing to avoid. If Kant had distinguished degrees in spatiality, he would not have had to take space ready made as given, nor to suppose matter wholly developed into parts absolutely external to one another. Kant's error was to extend to matter what is true only of pure space. Bergson then gives his own solution, that intellect and matter have progressively adapted themselves one to the other in order to attain at last a common form.

In *Matter and Memory* Bergson maintains that homogeneous space and homogeneous time are neither properties of things nor essential conditions of our faculty of knowing them. If we hold, with Kant, that they are forms of our sensibility, we are compelled to regard matter and spirit as equally unknowable (pp. 280, 281)—which is the conclusion drawn by Spencer and agnosticism generally. The Kantian idealism makes consciousness relative, and the Kantian realism can show no conceivable relation between the "thing-in-itself," that is to say the real and the "sensuous manifold." It makes space an ideal medium, given to begin with, as the necessary condition of what comes to abide in it (p. 307).

In *Time and Free Will* we are told that Kant held space to be "a reality as solid as the sensations themselves, although of a different order" (p. 92). He endows space with an existence independent of its content. "Far from shaking our faith in the reality of space, Kant has shown what it actually means and has even justified it." Bergson holds that Kant's conception differs less than is usually supposed from that of common sense; that it does not seem to have been seriously disputed since his time, and has forced itself, sometimes without their knowledge, on the majority of those who have approached the problem anew. For co-existence to give rise to space, "there must be an act of the mind which takes them in all at the same time and sets them in juxtaposition: this unique act is very like what Kant calls an *a priori* form of sensibility" (p. 94). And Bergson says that this act "consists essentially in the intuition, or rather the conception, of an empty homogeneous medium."

In another place (p. 232) he tells us that Kant's great mistake was to take time as a homogeneous medium. "Thus the very distinction which he makes between space and time amounts at bottom to confusing time with space." Time and space on Kant's view would not be any more in us than outside us; the very distinction of outside and inside would be the work of time and space. His doctrine gives a solid foundation to empirical thought, and guarantees that phenomena, as phenomena, are adequately knowable. Kant would probably never

have made the sharp distinction between matter and form, unless time, like space, had been regarded as a medium indifferent to what fills it. Bergson has "assumed the existence of a homogeneous space, and, with Kant, distinguished this space from the matter which fills it. With him we have admitted that homogeneous space is a 'form of our sensibility': and we understand by this simply that other minds, *e.g.* those of animals, although they perceive objects, do not distinguish them so clearly either from one another or from themselves. This intuition of a homogeneous medium, an intuition peculiar to man, enables us to externalise our concepts in relation to one another" (p. 236).

We may note, in passing, that what was described on p. 94 as "the intuition, or rather the conception" has now become an intuition. And yet if animals perceive objects as we do, though with less precision, does not the conception of homogeneous space arise, like any other conception, from our superior mental powers? And if so, is it an intuition at all? A child has probably no intuition of this kind; it perceives objects extended in space, and as it grows up gradually forms a conception of space as an empty homogeneous medium. This concept is formed like, and does not differ from, every other concept, except that it is a limiting or limitative conception. When Bergson's references to Kant are compared together, it will be found that his agreement with Kant amounts to this (C. E. p. 215), that geometrical space is prior to

experience. It is quite certain that our geometry is always justified by nature, but it does not follow that geometry is not an ideal formed by generations of successive experiences. As we are part of nature, it would be strange if our ideas were not conformable with nature.

As Bergson's views on time and space have already been given in some detail,[1] it is not necessary to repeat them here. His definition of space has his accustomed brilliance and clearness, but we must not let it take us by storm. An empty homogeneous medium, devoid of every quality whatsoever, would be indistinguishable from nothing. We may agree to neglect the differences in order to obtain an abstract geometrical space, but this space remains at any rate extensive. When he proceeds to say that time as a homogeneous medium cannot be distinguished from space, we agree to this extent, that it is impossible to distinguish between two nothings, but we do not agree that time has lost all its quality or has ceased to be temporal. We are reminded of Spencer's argument that time and space cannot be non-entities, as we should in that case have two different kinds of non-entity, which is absurd. Dr. Ward, as quoted above, tells us that pure space is a non-entity, and we may, by parity of reasoning, assume that abstract time is a non-entity, and we are then confronted by Spencer's dilemma. We can, however, only call them non-entities, if we strip each of all its qualities and so reduce it to

[1] See above, p. 56 ff.

nothing. Bergson does strip space of its qualities and yet regards it as a reality. His argument here fails to convince, and the fallacy seems to arise from attempting to regard space apart from the objects contained in it, that is, apart from experience. Dr. Ward's criticism of Kant's empty space applies equally to Bergson's homogeneous medium.

Bergson amplifies his definition of space as follows —"What we must say is that we have to do with two different kinds of reality, the one heterogeneous, that of sensible qualities, the other homogeneous, namely space" (T. F. W. p. 97). But as no reality can be wholly homogeneous without sinking into nothingness and ceasing to be a reality, so none can be completely heterogeneous. A reality which is all difference is as difficult to grasp as a reality which is all sameness. In neither case would there be anything for us to take hold of. Action, knowledge and science would be impossible if we could not discern points of similarity, or identities, in the heterogeneous and points of difference in the homogeneous.

In *Matter and Memory* (p. 273) Bergson gives a new definition of space—"Abstract space is, indeed, at bottom, nothing but the mental diagram of infinite divisibility." "We must throw beneath the continuity of sensible qualities, that is to say, beneath concrete extensity, a network, of which the meshes may be altered to any shape whatsoever and become as small as we please; this substratum which is merely conceived, this wholly ideal diagram of arbitrary and

infinite divisibility, is homogeneous space" (p. 278). Thus, what Bergson called a solid reality in *Time and Free Will* has now become a wholly ideal diagram; and homogeneous time is described as "a diagrammatic design of succession in general." Homogeneous time is no longer regarded as identical with homogeneous space; each retains its specific characteristic, and the criticism made of his treatment of homogeneous time and space in *Time and Free Will* receives its justification. "They are the diagrammatic design of our eventual action upon matter." "Space is indeed the symbol of fixity and of infinite divisibility." "Homogeneous space . . . is then seen to have no other reality than that of a diagram or a symbol." In Dr. Ward's words, it has ideality and validity, but not reality.

The theory of space elaborated in *Matter and Memory* remains substantially the same in *Creative Evolution*. The conception of space as a homogeneous and empty medium, infinite and infinitely divisible, implies a power to carve reality as we like: this space is the plan of our possible action on things. It is a view taken by the mind and it enables the intellect to decompose according to any law and to recompose into any system (p. 165). On page 212 Bergson tells us that our personality descends in the direction of space when the interpenetration of our conscious states becomes broken up and externalised. The idea which the mind "forms of *pure* space is only the *schema* of the limit at which this movement would end." Once formed,

we use it as a net to divide up matter according to the needs of our action. In these sentences Bergson clearly recognises that our conception of abstract space is a limiting conception. In discussing deduction and induction (p. 226 f.), Bergson endeavours to show that both these forms of procedure, and therefore all intellect, find their ideal limit in geometry.

As there is a concrete space in which we move and an abstract or ideal space which we use for our geometry, so there is a concrete time in which we live and an abstract time which we use for our science. Most writers on time and space put the two on the same plane and reason as if what is true of the one must be true of the other, but when they come to represent time they find, as Kant found, that they can do so only by drawing a line in space. Bergson, struck by this singularity, discovered that science is compelled, in the consideration of time, to omit its essential element. Change, the fundamental fact in all our time experience, includes duration, succession and simultaneity, but of these three science retains only the third. "All the relations which cannot be translated into simultaneity, *i.e.* into space, are scientifically unknowable."

Bergson further observed that this simplification made by science had been attended by brilliant results; it had, in fact, made science and its ever-growing achievements possible; and his own method consists in making a similar separation, but from

the other side, and Bergson's separation, it will be admitted, has been attended by results equally brilliant. But we must always bear in mind that a separation of this kind is, in a sense, illegitimate; that it has been made for the purpose of inquiry, and that we must not assume that what is true of the part is necessarily true of the whole. Such has been the constant error of scientific writers, for they have generally failed to recognise that in their discussions of motion, life and mind, they have omitted to take into account the essential element. In the same way Bergson's contrasts in *Time and Free Will* are much too definite to be definitive. They are made for a purpose and will require readjustment when his thought is viewed as a whole.[1]

Bergson defines simultaneity as the intersection of time and space; it is the connecting link between duration and space, for each moment of duration "can be brought into relation with a state of the external world which is contemporaneous with it, and can be separated from the other moments in consequence of this very process" (T. F. W. p. 110). In other

[1] Dr. McKellar Stewart in his *Critical Exposition* seems to me to have overlooked this. His tendency is to give further emphasis to contrasts which Bergson has already over-emphasised, with the result that his analysis, in spite of its acumen, gives rather a distorted view of Bergson's philosophy. Mr. A. D. Lindsay is a more conservative critic. Both books are for the student rather than for the general reader. The treatment in each is more technical than in Bergson himself; although, no doubt, to those who understand them, technical terms are always the clearest.

words, our consciousness, when it is not self-consciousness, that is purely introspective, is always consciousness of a contemporaneous state of the external world. To be conscious is to think of; it implies the relation between subject and object. But our perception, however instantaneous it may appear to be, always takes time, is always tinged with memory, has duration, brings the past into the present. There is no such thing as an absolute present; it has passed before we can think it; our present always includes some memory of the past and some anticipation of the future. In *Time and Free Will* Bergson represents the external world as always existing in an instantaneous present, absolutely timeless but perpetually renewed, the ideal assumed by science when it represents change by a series of static equations and so eliminates real change altogether. Bergson's attitude here is that of a rigid dualism, although we must remember that this dualism is not maintained in his later books. He illustrates his position from the movements of a pendulum, an illustration which has become classical and whose very clarity lends itself to criticism. It might almost say with Goethe's Margaret, "Schön war ich auch und das war mein Verderben."

Simultaneity implies space, as Bergson says, but it implies a time-element as well, for it implies that the things juxtaposed are not only present side by side but present at the same time. We can conceive a juxtaposition in which one thing has disappeared

when the next appears, and we can distinguish a second juxtaposition in which the things are present at the same time. Bergson denies that there is a succession in the former case; he says, for instance, that one stroke of the pendulum has ceased when the next appears, and that the succession exists only for a conscious spectator. But why should we interpret the juxtaposition as a succession, if it is in fact not a succession at all? It may be granted that the succession is recognised only by a conscious spectator, for recognition requires mind, and mind implies duration. But to assert that what we know as succession is not succession is to assert that we have knowledge which is not knowledge, an obvious absurdity unless the knowledge can be shown to be hallucination—and there is, of course, no suggestion of that kind in the present instance. It is, no doubt, the ideal of science to present succession in the form of equations which can be read backwards or forwards and which therefore exclude any idea of succession, but science is not reality. Kant draws a distinction between change and alteration; and we might say that a succession is a change from the point of view of a conscious observer and an alteration from the point of view of abstract science; each would imply succession, but change would imply duration as well. Change in that case would be the result of conscious effort; alteration the result of mechanical movements.

In his later works Bergson not only does not maintain that "succession exists only for a conscious

spectator" but he maintains the exact opposite. "Yet succession exists; I am conscious of it; it is a fact. When a physical process is going on before my eyes, my perception and my inclination have nothing to do with accelerating or retarding it" (C. E. p. 357). But it is not necessary to labour the point, for in *Matter and Memory* one of Bergson's main objects is to show that there are real movements in the external world. Our inner life endures and the whole universe endures. If there appears to be no duration in the systems with which science deals, it is because science has artificially isolated them from the whole. Some systems are more properly isolable than others, and the truth of science is relative to, and varies with, this comparative isolability. In order to measure time, science is compelled to spatialise it and so to ignore its reality, to assume that it does nothing and is nothing. Measurement is the proper province of science, for Bergson, like Kant, regards science as it is exemplified in the exact sciences, whose ideal is a universal mathematic. If we are to understand life as a living process, we must go to philosophy, or in other words to a new science, which will not be exact or mathematical, but which will bring us into closer touch with reality and enable us to resume the elements which exact science has been compelled to discard. We shall then carve reality at the joints,[1] study the

[1] This image is suggested to Bergson by Plato, who compares (*Phaedrus* 265 E) the good dialectician to a skilful cook carving an animal without breaking its bones, by following the articulations marked out by nature.

real articulation of things, and our knowledge will be no longer abstract and artificial. Bergson has clearly shown the insufficiency of the old method of science to give us a philosophy of life, valuable as its results have been within its own sphere, and the justification of his own philosophy will depend upon the possibility of the new method of science which he asks us to adopt.

II. ZENO AND MOTION

ZENO with his "sophisms" gave prominence to a difficulty which modern science has never succeeded, and from the nature of the case will never succeed, in explaining. It is therefore worthy of attention, more especially in view of the light which Bergson throws upon it, for the problem of motion is typical of the other problems of life and evolution before which science stands helpless. Both common sense and science recognise motion as a fact; science assumes it but cannot explain it, and, when it comes to measure it, is compelled to replace it by immobilities. The point of Zeno's paradox has been frequently misapprehended. Most philosophers have had something to say about it, from Aristotle through Hobbes and J. S. Mill down to the present day. Mr. Bertrand Russell deals with it in his *Philosophy of Mathematics*, and William James has a fairly full discussion in his posthumous *Some Problems of Philosophy*. Mill in his *Logic* states Zeno's Achilles paradox substantially as follows:—Let us imagine that Achilles runs ten times as fast as a tortoise, which has a start of a thousand feet. It may then be shown that Achilles will never overtake the tortoise, for by the time he has run those thousand feet the tortoise will have run a hundred, and when Achilles has run those

hundred the tortoise will have run ten, and so on for ever. Mill says that the argument proves that time must be infinitely divisible, not that an infinite time would be required for Achilles to overtake the tortoise. But Mill missed the point of Zeno's argument, which was not meant to show that an infinite time would be required, for that is an obvious absurdity.

This is made clear in another form of the Eleatic contention, drawn from the flight of an arrow. At each point of time the arrow occupies a certain point of space, or in other words is at rest. Thus the motion of the arrow consists of a number of rests, and the arrow therefore does not move. Zeno is maintaining not that motion could not really take place, but that it could not truly be conceived as taking place by the successive occupancy of points. The real difficulty is the nature of motion. The successive occupancy of points is not motion, but a spatial representation of it for the purpose of measurement or calculation. The movement is a reality which the mathematician does not explain but takes for granted. The arrow passes through the points but is not at a given moment in any one of them. Neither the movement nor the duration it occupies is represented by the space traversed, although common sense and science regard them as being so for the purpose of calculation. Once the process is reduced to a diagram, the motion has disappeared.

Mr. Bertrand Russell says:—"We must entirely reject the notion of a state of motion; motion

consists merely in the occupation of different places at different times. . . . There is no transition from place to place, no consecutive moment or consecutive position." Contrast with this Bergson's view as given in *Time and Free Will*:—"Motion, regarded as a passage from one point to another, is a mental synthesis, a psychic process . . . it has reality only in our consciousness." Now, whatever motion may really be, it is impossible to accept as adequate either the mathematical definition of Russell or the purely subjective view taken in the *Essai*. We have no difficulty in distinguishing between a change of presentation and a presentation of change, between, as we saw when discussing time and space, a succession in things perceived and a perception of succession, for in the latter case we are aware of something which is itself moving or changing, and the motion or change must be objective and external. It is therefore independent of our conscious life, although it cannot be properly explained as a series of positions in space. Science may treat it in that way for its own purposes, but the conception is inadequate since it is a conception of motion with the motion omitted. We therefore conclude that the external world has movements of its own and that science is unable to take account of them. We find Bergson adopting this view in his later works and arguing that mathematical methods are not the only possible methods in scientific inquiry. His account of motion in *Time and Free Will* is incomplete and needs to be supplemented; otherwise serious misconceptions may arise.

In *Matter and Memory* (p. 246 f.) Bergson begins by observing that every movement is absolutely indivisible. "The senses, left to themselves, present to us the real movement, between two real halts, as a solid and undivided whole," although the mind, when recomposing the movement, thinks that the moving body has stayed an infinitely short time at every point of its trajectory. (It may be noted that the movement is now regarded as a reality, and not merely as a subjective synthesis as in *Time and Free Will;* also, that the senses may perceive a reality when the intelligence cannot—the latter point being really the germ from which Bergson afterwards developed his theory of metaphysics.) We know that the space traversed is infinitely divisible, and we are erroneously led to assume that the motion is similarly divisible, thereby making a progress coincide with a thing, a movement with an immobility. This error is facilitated by another. Every movement takes time, *i.e.* has duration, and this duration, when it has elapsed, may be symbolised by a line drawn in space, but duration as it flows cannot be so symbolised and cannot be properly regarded as composed of separate parts.

Both Zeno and common sense make this erroneous assumption. For ordinary folk the confusion is immaterial, since they are concerned only with practical ends, but the philosopher cannot be content to regard movement as immobile. By his first argument (the Dichotomy) Zeno "merely proves that it is impossible to construct, *a priori*, movement

with immobilities, a thing no man ever doubted." The second argument (the Achilles) assumes that the movement of the two bodies coincides with their path and may be divided, like the path, in any way we please. Both Achilles and the tortoise run in indivisible bounds, after a certain number of which Achilles will have overtaken the tortoise, but we cannot legitimately disarticulate these bounds and reconstruct them in an arbitrary way. The third fallacy (the Arrow) assumes that we have the right to distinguish indivisible moments in the duration of the movement of a moving body. Bergson also discusses the fourth argument (the Stadium) which has been unjustly disdained because of its obvious absurdity, and he regards it as worth exactly as much as the other three.

The mathematician deals only with relative movements, which, however, for the physicist are real. No one can deny that there is real motion; otherwise nothing in the universe would change, and there would be no meaning in the consciousness which we have of our own movements.

In *Creative Evolution* (p. 322 ff.) Bergson introduces his remarkably effective comparison of the mechanism of our knowledge to a cinematograph. We can take as many snapshots as we like of a moving body, but each of these is immobile. However many we take and at whatever short intervals of time we take them, the result is the same—there is no movement. By turning the film we reconstitute the photographs into a representation of a

moving body, but—and this is the important point—we have ourselves put the motion into the apparatus. The foregoing is only a very bald statement of Bergson's analogy. He now goes on to show its application to knowledge. Instead of attaching ourselves to the inner motion of things, we recompose their motion artificially from the outside. "We take snapshots, as it were, of the passing reality, and, as these are characteristic of the reality, we have only to string them on a becoming, abstract, uniform and invisible, situated at the back of the apparatus of knowledge, in order to imitate what there is that is characteristic in this becoming itself. Perception, intellection, language so proceed in general." The mechanism of our ordinary knowledge is of a cinematographical kind, and this cinema-method is the only practical method. But the motion, or becoming, or change so obtained is illusive. We are thus brought back to Zeno and his attempt to reconstruct motion out of immobilities.

The arrow is motionless, if we suppose it can ever *be* in a point of its course, and if a moving arrow ever coincides with a motionless position. But neither supposition is tenable. The most we can say is that the arrow might be in any point of its course, in this sense, that it passes there and might stop there. In that event it would be at rest and there would no longer be movement. If the arrow in its flight from A to B is in a point C midway between A and B, it would stop at C and we

should have two flights instead of one. But, by hypothesis, we are dealing with a single movement; and this is as simple and undecomposable as the tension of the bow that produces it.

All Zeno's arguments consist in applying the movement to the line traversed, and in supposing that what is true of the line is true of the movement. We can divide the line as we like, but we cannot articulate the movement as we like and suppose that it is always the same movement. Each step of Achilles and each step of the tortoise must be treated as indivisible. We may take a submultiple of the steps of each, if we wish to do so, and so long as we respect the articulations of the two courses, no difficulty will arise. "But Zeno's device is to reconstruct the movement of Achilles according to a law arbitrarily chosen. Achilles with a first step is supposed to arrive at the point where the tortoise was, with a second step at the point which it has moved to while he was making the first, and so on. In this case, Achilles would always have a new step to take. But obviously, to overtake the tortoise, he goes about it in quite another way. The movement considered by Zeno would only be the equivalent of the movement of Achilles if we could treat the movement as we treat the interval passed through, decomposable and recomposable at will. Once you subscribe to this first absurdity, all the others follow" (C. E. p. 328).

Bergson has given considerable attention to the Eleatic problems because they illustrate the diffi-

culties into which exact science falls when it attempts, with what is made, to reconstitute what is being made. In life and evolution the reality is the transition, but we lose sight of the fact because our language is not moulded on reality. We must get rid of our cinema-language and our cinema-thought if we are to avoid the theoretical absurdities raised by the questions of movement, change and any kind of growth. This means that we have to reverse the bent of our intellectual habits, and to "write off" as shipwrecked all philosophies, whether intellectualistic or scientific, which are based on the cinematographical method. When we have done that, we may find that the only philosophy left to us is the philosophy of Bergson.

III. DURATION AND THE SELF

Our English word duration has not the connotative richness of the French, and in default of a better, such as "enduration" might possibly be, we have constantly to bear in mind the meaning which Bergson gives to it. By duration he means primarily that element of time with which science is unable to deal, the inability of science in this regard being itself proof of the limitations of science and of the insufficiency of mechanistic systems based upon scientific laws. If we are to know duration we must reflect upon our own conscious states, but the very act of reflection has already to some extent destroyed their flow, for we cannot reflect without separating and externalising conscious states which in duration are one and inseparable. We recognise duration best when we no longer measure it but feel it, when we live it rather than think it. "Pure duration is the form which the succession of our conscious states assumes when our ego lets itself *live*, when it refrains from separating its present state from its former states."[1] Bergson further defines it as "a succession of qualitative changes, which melt into and permeate one another, without precise outlines without any tendency to externalise themselves in

[1] *Time and Free Will*, p. 100.

relation to one another, without any affiliation with number."[1] It is pure heterogeneity.

Creative Evolution begins with a striking contrast between what we mean by our own existence and the existence of inert matter. "Sensations, feelings, volitions, ideas—such are the changes into which my existence is divided and which colour it in turns. I change, then, without ceasing." Each of these sensations etc. is itself undergoing change every moment; if it did not, duration would cease to flow. "My mental state, as it advances on the road of time, is continually swelling with the duration which it accumulates." We notice the change only at intervals, but "the state itself is nothing but change," and the transition from one state to another is continuous. Our attention separates these states artificially, and, in order to re-unite them, it has to imagine "a formless *ego*, indifferent and unchangeable, on which it threads the psychic states which it has set up as independent entities." But this colourless and impassive *ego* is a mere symbol without any reality; its only use is to remind us that the discontinuity we have introduced into our psychic states is an artificial discontinuity of our own making, for what we have done is to eliminate real time. And time is just the stuff our psychical life is made of.

"There is, moreover, no stuff more resistant nor more substantial. For our duration is not merely one instant replacing another; if it were, there would

[1] *Time and Free Will*, p. 104.

never be anything but the present—no prolonging of the past into the actual, no evolution, no concrete duration. Duration is the continuous progress of the past which gnaws into the future and which swells as it advances. And as the past grows without ceasing, so also there is no limit to its preservation." Memory is not a faculty, for a faculty works intermittently; our past is preserved by itself, automatically; it is always there in its entirety, pressing against the portals of consciousness, but the cerebral mechanism admits only what is useful for the present.[1] "It is with our entire past, including the original bent of our soul, that we desire, will and act." We know our past, as a whole, in its impulse or tendency, and only a small part of it in the form of idea.

"Thus our personality shoots, grows and ripens without ceasing. Each of its moments is something new added to what was before. We may go further: it is not only something new, but something unforeseeable," even by a superhuman intelligence. "That which has never been perceived, and which is at the same time simple, is necessarily unforeseeable." Each of the moments of our life is an original moment of a no less original history; each is a kind of creation. "For a conscious being to exist is to

[1] Beneke, who died in 1854, had a theory of memory in some respects like that of Bergson. He held that it is not a faculty, but that ideas persist in the soul as what he called foot-prints. These foot-prints do not come into consciousness until they are revived by means of a transference of stimulus received from without. But his resemblance to Bergson is quite superficial.

change, to change is to mature, to mature is to go on creating oneself endlessly." "Like the universe as a whole, like each conscious being taken separately, the organism which lives is a thing that *endures*. Its past, in its entirety, is prolonged into its present, and abides there, actual and acting." "Wherever anything lives, there is, open somewhere, a register in which time is being inscribed. This, it will be said, is only a metaphor.—It is of the very essence of mechanism, in fact, to consider as metaphorical every expression which attributes to time an effective action and a reality of its own. In vain does immediate experience show us that the very basis of our conscious existence is memory, that is to say, the prolongation of the past into the present, or, in a word, *duration*, acting and irreversible. . . . Time is assumed to have just as much reality for a living being as for an hour-glass" (p. 18).

If time *does* nothing, it *is* nothing. Duration "is the foundation of our being, and, as we feel, the very substance of the world in which we live." We must appeal to consciousness, "that which is most indisputable in our experience" (p. 41). "Real duration is that duration which gnaws on things, and leaves on them the mark of its tooth," so that repetition is possible only in the abstract. Intellect, intent on that which repeats, "turns away from the vision of time. . . . We do not *think* real time. But we live it, because *life* transcends intellect" (pp. 48, 49).

If the reader feels a little confused by this medley

of images, he must remember that Bergson is endeavouring to express in words something which can only be apprehended immediately as an intuition. No rigid definition is possible, and any attempt at definition must proceed by way of comparison with something we can define, that is, by way of metaphor. Such metaphors are of different values, and may therefore suggest a confusion of thought where none exists. The quotations, moreover, are taken apart from their context, and unless we know the context we cannot tell on what aspect of duration Bergson may be, for the moment, insisting. We cannot argue about an intuition unless we break it up into concepts, but such a breaking up, although unavoidable, must necessarily impair the original purity of the intuition. Bearing this in mind, we can use both methods, each of which will push on the other indefinitely.

If we ask ourselves what our own life is, using the word life in its ordinary meaning, we see that it is essentially a continuous progress from the cradle to the grave, that it is an interpenetration of the past into the present, in the sense that everything we have done or suffered or experienced is carried forward to the present and leaves some impress upon it. By abstracting from the living body we see that the characteristic note of life is that it endures, that it has, or is, duration. When life seems to us to come to an abrupt close in death, we see that what is lost is this duration, this permeation of the present by the past. Similarly, if we consider our inner or

psychical life, the flow of our conscious states, we again find that the essential feature is a continuous progress, in which the whole of the past influences the present and, in a sense, creates it; here again we can say with confidence that our inner life endures, that it has, or is, duration. Nor is it difficult to recognise that we cannot separate our inner life into its component parts without stopping its flow and destroying its duration, or, in Bergson's expression, without spatialising it. If we stop to dissect our mental life, we have immobilised it, placed it out on an imaginary table and separated its parts in space; duration, its essential characteristic, has disappeared in the process.

Bergson's conception of duration is thus readily confirmed by our ordinary thought, and so far as his argument in *Time and Free Will* is concerned we should hardly need to probe it further, for his object throughout that book is to show how our inner life differs from the existence of inert matter. Bergson, then, we may conclude, has abundantly justified his contention that science cannot explain our inner life, for he has shown that the method of science requires that this inner life, which is not itself spatial, should be separated or laid out in space. Hence the conclusions of science must be false or incomplete, and this is further demonstrated by its inability to deal with motion except as a series of immobilities. Therefore any attempt to erect scientific conclusions into a philosophy must fail, for the scientific view, taken by itself, is almost

demonstrably insufficient, since there is an undoubted element in our perceptual experience which has no counterpart in the scientific conception of time. When science tells us that a body is composed of chemical elements, we agree; if it proceeds to maintain that a living body can be explained as such a composition, we disagree, for we know that there is all the difference in the world between a living body and a dead body, and we can realise that this difference may, and indeed must, consist in the continuous permeation of the present by all the past, or, as Bergson says, in duration. It is significant that Professor Schäfer, in his Presidential Address to the British Association, 1912, drew no distinction between life and living matter, and that he appeared to assume that chemists, when they have made something which imitates the movements of protoplasm, have thereby created protoplasm. There is ground for saying that living things as we know them have originated in the course of evolution, but the proper inference to draw from that is, not that life itself has originated, but that we know life only in connexion with matter.

Throughout *Time and Free Will*, Bergson draws a sharp contrast between our psychical life and inert matter, and contends that the former only has duration, while the latter lies completely within the province of science. He adopts the scientific view that things do not endure and that change is a succession only for a conscious spectator. Hence his conception of duration is, so far, very like Professor

Ward's:—"What the term duration ultimately represents is our immediate subjective experience as actively striving and wearing on: it implies the actual living, which only is actual in so far as it is not homogeneous and empty but full of changes endured or wrought." [1] But in his later thought Bergson denies that duration is merely subjective; he maintains that the universe endures as a whole, and that the conclusions of science can be accepted only so far as it is justified in separating parts from this whole and in viewing them out of relation to its duration. Some systems can be regarded, for practical purposes, as isolable. The solar system, although not really isolated, can be so regarded, and the conclusions which science draws from the repetition of its movements will be free from serious error. But science cannot afford to neglect real time in dealing with the universe as a whole, or with living things of which duration is an essential characteristic. It matters little in *Time and Free Will* whether we regard our inner life as having, or as being, duration, but when time becomes the keystone of Bergson's philosophy the distinction is

[1] *The Realm of Ends*, p. 306. Dr. Hastings Rashdall says:—"Empty time is of course unreal, but temporality enters into all our experience, and is an element in our experience as real as anything we know or can conceive. . . . I recognise this [insistence on the reality of experience as seen from the inside, and on change and temporality as inherent elements in that reality] as one of the most permanent and valuable elements in the philosophy of M. Bergson . . . although there may be not an equal insistence on the complementary principle that change implies something permanent." *The Metaphysic of Mr. F. H. Bradley*, p. 24.

important, for in the first alternative duration would be but an aspect of reality, while in the second it would be reality itself.

A consideration of the quotations already given seems to show that Bergson regards duration in both lights, at one time as identical with our psychical activity, at another as a force acting on that activity. Perhaps the most definite statement is that quoted from *Creative Evolution*, p. 17, ". . . the very basis of our conscious existence is memory, that is to say, the prolongation of the past into the present, or in a word, *duration*, acting and irreversible." Here duration is made identical with memory, which is spirit; and spirit, the psychic force or activity at the very basis of our conscious existence, is the prolongation of the past into the present. Elsewhere we are told that reality is life, that life is "of the psychological order," or in other words a psychic force. On p. 287 duration is described as the very stuff of reality, and reality, whether matter or mind, as a perpetual becoming. We must distinguish between life in general, which "is mobility itself," and particular manifestations of life which "accept this mobility reluctantly," and are therefore relatively stable. Life is "consciousness launched into matter," and "consciousness is distinct from the organism it animates, although it must undergo its vicissitudes." Consciousness is essentially free, "but it cannot pass through matter without settling on it, without adapting itself to it." This adaptation is intellectuality, and the intellect

in its turn makes consciousness enter into conceptual forms. Thus consciousness as we reflect upon it is not pure duration, and a vigorous effort of the will is necessary if we are to grasp the idea of pure duration, for it is an idea which we cannot know but which we can live.

Adequately to discuss the relations of the various terms given above would be to rewrite *Creative Evolution*, and the purpose of the present note is the more modest one of endeavouring to show the difference between time as pure duration and time as the measurement of simultaneities, the latter being the form in which it is known intellectually and in science. Bergson tells us (T. F. W. pp. 126, 127) that when we dream we feel duration as quality,[1] but the value of this reference to dreams is discounted by the statement in *Matter and Memory* that dreams imitate insanity. Nor are we helped very much by the suggestion that our feeling of duration is a confused instinct and that it is probably what animals perceive. Consciousness signifies hesitation or choice (C. E. p. 152); it arises as an interruption of duration and when we are confronted by action. It would seem to follow from this that we can never be really conscious of duration, and that the idea of duration must be a limit which, as we try to grasp it, ever flees before us. We may seek it in sleep or in dreams, for we are then nearly uncon-

[1] Compare Nietzsche: "Nothing contains more of your own work than your dreams; nothing belongs to you so much."

scious. When we are quite unconscious our duration will still be flowing, although no longer adding new memories to the old ones; and even in death there may be a duration, and our memories, forlorn ghosts of the past, will still be there, pressing against the portals of a consciousness which will nevermore be open to them. It is, however, clear, from these and similar considerations, that we must rid consciousness of all cognition and intellect before we can intuite duration in its purity. By gradually extracting these apparently essential elements of our conscious life, we shall approach at the limit the idea of existence as a continuous flow in which the whole of the past is in the present and creating the future. Bergson then takes this residuum of consciousness and pictures it as the ultimate basis of evolution. Hence we may say that he finds in duration the substance of a universe whose reality is change. The psychic force which wells up in our consciousness as duration is the world-spirit. God is "unceasing life, action, freedom," and Bergson likens God to "a centre from which worlds shoot out like rockets in a fire-works display — provided, however, that I do not present this centre as a *thing*, but as a continuity of shooting out" (C. E. p. 262).

Bergson's conception of time as the stuff of reality has naturally aroused much criticism, with which we are not concerned here, but it is not in itself less thinkable than other theories, and it has the merit of avoiding many difficulties by which they are con-

fronted.[1] It is true that it is not easy to see how evolution makes a start. Spencer's nebula had to rotate itself, and Bergson is compelled to assume an interruption to his current of creative activity before it can begin to work, for otherwise there would seem to be no reason why it should not flow on for ever, like a placid tide until it meets a shoal. No doubt something must be assumed, but Bergson appears to make a double assumption, and with two principles at work the rest ought to be easy. If we could posit both a principle of good and a principle of evil, theology would be child's play. But when Bergson essays to engender matter, that is to explain its genesis or birth, he should have taken particular pains to make clear to his readers that he was not assuming—under however ethereal a form—the matter he was seeking to deduce.[2]

Our consciousness is a continuous flow of sensations, volitions, ideas, which we cannot call one or

[1] Mr. Bertrand Russell, discussing the questions of appearance and reality aroused by the contemplation of such an ordinary object as a table, well says:—"Such questions are bewildering, and it is difficult to know that even the strangest hypotheses may not be true. Thus our familiar table, which has roused but the slightest thoughts in us hitherto, has become a problem full of surprising possibilities. The one thing we know about it is that it is not what it seems. Beyond this modest result, so far, we have the most complete liberty of conjecture. Leibniz tells us it is a community of souls; Berkeley tells us it is an idea in the mind of God; sober science, scarcely less wonderful, tells us it is a vast collection of electric charges in violent motion. Among these surprising possibilities, doubt suggests that perhaps there is no table at all." *The Problems of Philosophy*, p. 24.

[2] For criticism on this and other points the reader should refer to Dr. Stewart's analysis, and to Mr. Balsillie's *Examination*.

many; it is a unity that is multiple and a multiplicity that is one;[1] and the idea of an *ego* is an artificial one which we are compelled to invent in order to reunite states, essentially inseparable, which we have separated for the purpose of study; the states themselves are the *ego;* more properly, they form a single state, a unity in multiplicity, which is the *ego; l'état c'est moi*, as the French king said in another connexion. When we talk of a "content of consciousness" we are using a spatial metaphor which distorts the truth. But when I examine my consciousness I see that it appears to be much more than a flow of sensations, volitions and ideas, for each of these, and the whole they form, is in relation to me as subject, and the most striking aspect of consciousness is not so much the ever-changing flow of its states as the ever-unchanging, self-identical personality of the *ego* whose states they appear to be. On this feature of the self Bergson lays little stress, possibly because he thinks that it is sufficiently recognised and that no further emphasis is necessary. But the omission is unfortunate, for it is generally recognised that all philosophies of change, from the time of Heraclitus, have found their main difficulty in accounting for the permanent. Where all is change, the permanent must be an illusion. Bergson explains this illusion as arising because "our perception manages to solidify into discontinuous images the fluid continuity of the real." For example, what we see as red light

[1] See *An Introduction to Metaphysics.*

is really the movement of millions of vibrations. So far his explanation is borne out by science; but what is it that gives to the unceasing flow of conscious states their co-ordination as "mine"? Why is the activity of consciousness always the activity of a self-identical being, who remains the same however much his conscious states may flow and change? Bergson again refers us to his theory of perception, and explains that this feeling of personality is due to the privileged position of the body, which is not only part of the material universe but our centre of the universe. The theory is worked out in *Matter and Memory*, but Bergson does not there appear to resolve definitely the questions connected with our feeling of personality, and he might say that they lay outside his main purpose.[1]

The distinction which Bergson draws between duration or real time and the time measured by science may be regarded as inexpugnable, and the corollary naturally follows that there are two selves; one the fundamental, deep-seated, concrete and living self, the self that endures; the other the superficial, secondary, artificially separated, externalised and spatialised self, the self of our perception and science, for the duration in which we act differs essentially from the duration in which we see ourselves acting. But if each of us has two selves, we

[1] It is possible that he is reserving them for fuller treatment, a possibility favoured by the fact that his four lectures on the soul delivered in 1911 have not yet been printed.

may ask, without flippancy, why not two hundred? There are degrees of freedom, and our actions will range between two limits, from the absolutely determined, automatic and unconscious movements, in which nothing of the real self is engaged, to the absolutely free but equally unconscious and unreflecting actions which spring from the self as pure duration. For consciousness, as we have seen, implies an interruption of duration; it is a middle state lying between these two, possibly ideal, limits; as soon as we begin to reflect we impair the original purity of our duration. At the higher limit, if we ever reach it, our actions would be actions of pure spirit, unreflecting but inspired impulses; at the lower limit our actions would be unreflecting and mechanical movements. Between the two limits must lie an infinite number of possible states issuing in an infinite number of acts of infinite degrees of freedom, and to each of these a self must correspond. The thought is a little bewildering, but it seems to follow as a necessary consequence of the distinction which Bergson quite legitimately draws.

There are many points in his discussion of freedom and of causality which might call for comment, but we shall notice only one. He tells us the self "lives and develops by means of its very hesitations, until the free action drops from it like an overripe fruit" (*Time and Free Will*, p. 176). This striking image sums up in a few words both the strength and weakness of Bergson's conception of freedom. He will have nothing to do with *liberum*

arbitrium, the capricious and arbitrary indeterminism which issues in actions entirely causeless and lawless. This view of freedom seems to have been in Kant's mind when he conceived freedom as pure spontaneous activity and thought that such activity opened the door to chance. For there is no objective chance, although there may be coincidence and contingency. Bergson regards an act as free because it is unique, a new creation, the culmination of a personal history which never repeats itself. It cannot be deduced from a series of causes, because the series is not complete, and the causes cannot be known, until the act has been performed. It springs from the fundamental self, and freedom becomes incredible as soon as the conscious states are separated or spatialised, for they then cease to endure and consequently cease to create. It is the uniqueness of the psychic state, from which the act springs, which makes it free. It may be regarded as a result or effect, in a sense, because, as Bergson finely says, "it agrees with the whole of our most intimate feelings, thoughts and aspirations, with that particular conception of life which is the equivalent of all our past experience, in a word, with our personal idea of happiness and of honour." If it is an effect, it is an unforeseeable effect; and if caused, it cannot be known as caused—but Bergson himself does not appear to recognise that an act may be unforeseeable and yet the result of causes.

For his simile of an over-ripe fruit here tends to betray him. If our freedom is like that of an

apple-tree, it cannot be of much account for those problems of pure ethics which gave preoccupation to Kant. The categorical imperative can find here no resting-place, if the free act is like a vegetable growth. But it would be a mistake to press Bergson's illustration too far, for the free act is the creation of our own particular duration which differs from the duration of an animal or of a vegetable. We can feel our freedom but cannot explain it, for any explanation requires that we should set out in space that which exists only in time. This seems to bring us back to Kant's view, and to his distinction between practical and transcendental freedom. And so it does, but to Kant's view with a difference. For with Kant there are no degrees of freedom, and there appears to be no possible transition from noumenal freedom to phenomenal necessity. But Bergson explains the transition as made by imperceptible steps from pure or concrete duration to a symbolical duration whose moments are set side by side and cease to interpenetrate. We live pure duration, but cannot examine it without spatialising it and so denying it. Kant put time and space on the same level, and accepted a view of the self as a number of discontinuous states which, as phenomena, appeared to be as much necessitated as the states of matter. He was right in putting the real or free self outside space, wrong in supposing that it is also outside time or duration, for in this way he made it noumenal and unknowable. A knowledge of freedom

depends upon a knowledge of our own duration, and that in its turn depends for its validity upon a critique of intuition and consciousness. If, as Bergson seems to suggest, the intuition of our duration or inner self is like our consciousness in dreams and like the ruminating perception of animals, it is not likely to give us any very definite knowledge of human freedom.

In *Matter and Memory* (p. 243) Bergson repeats that the free action is an advance upon its antecedents "as the fruit is upon the flower," while denying that freedom is thereby, "as has been asserted," reduced to sensible spontaneity. "At most this would be the case in the animal, of which the psychical life is mainly affective. But in man, the thinking being, the free act may be termed a synthesis of feelings and ideas, and the evolution which leads to it a reasonable evolution." We must distinguish the point of view of customary or useful knowledge from that of true knowledge. In *Creative Evolution* (p. 30, note), he denies that a creation can be understood as a *synthesis* of elements. "Where the elements pre-exist, the synthesis that will be made is virtually given, being only one of the possible arrangements. This arrangement a superhuman intellect could have perceived in advance among all the possible ones that surround it. We hold, on the contrary, that in the domain of life the elements have no real and separate existence." On p. 50 he again lays stress on the view that the essence of a free act is its unforesee-

ability, "even though its antecedents explain it when once it has been accomplished." Our intention can never aim at anything but recommencing or rearranging the past, though our intention when realised is a new reality. "A conduct that is truly our own . . . is that of a will which . . . ripens gradually into acts which the intellect will be able to resolve indefinitely into intelligible elements without ever reaching its goal." Bergson is unable to get away from the fruit metaphor; an act of free will is a "real maturing of an internal state"; and his conception of freedom therefore, however true it may be, falls very short of the meaning usually given to free action.[1]

[1] I have let this sentence stand as it has drawn an interesting comment from Professor Bergson, who writes to me—"You say rightly that I compare the process of free activity to the maturing of a fruit; but you add that in doing so I separate myself from the ordinary meaning of the word 'freedom.' That would be so, no doubt, if this maturing concerned only feelings; but thought enters into it as well; and if regard is paid to this, it will be found, I think, that my conception of free will is just that of common sense."

MATTER AND MEMORY

In order that we may the better follow the drift of a rather complex argument Bergson tells us, in his introduction, to bear in mind two considerations—and these principles will be found to be important for the understanding of all his thought —(1) Our mental functions are essentially turned towards action, and (2) the habits formed in action find their way up to the sphere of speculation and there create fictitious problems.

In *Matter and Memory* Bergson deals with the relation of mind to body. He affirms the reality of spirit and the reality of matter, and his position is therefore frankly dualistic, but he endeavours to show that dualism as he accepts it—for the purpose of this book, we may venture to add—is not open to the objections usually urged against it. His use of the word "image" has been wrongly held to assume idealism,—but it has been retained here in order to avoid confusion when the reader proceeds to Bergson's own book. Image, then, is taken as equivalent to perceived object. The reader can substitute any term he likes so long as it implies no philosophical theory. The position from which Bergson views things is intended to be that of common sense.

My body is an image among other images; it receives movements from the rest of the universe and transmits movements in its turn. All these movements are mechanical, and perfect knowledge would enable us to predict them. But my body also occupies a special position; it is for me the centre of the universe and I have a special knowledge of it. Some of its movements are automatic; others I seem able to perform or not as I wish. When I take the initiative, consciousness is present in the form of feeling or sensation; when my movements are automatic, consciousness disappears. I feel entitled to conclude *prima facie*, that nothing really new could happen in the universe except through my body or through a body like it.

As part of the material universe my body is part of the general system of movements; as my centre of the universe, it conditions a system of images which I term my perception of the universe. Thus there are two systems, that of science and that of consciousness; what are the relations between them? Materialistic realism derives the second from the first; it starts with the universe as an aggregate governed by laws, a number of images without any centre; but it is at once compelled to recognise the existence of perceptions. Now these perceptions are just what subjective idealism starts from, that is to say, from a privileged image, the body, which conditions the other images; but as soon as this privileged image proceeds to action, it is compelled to recognise that things are governed by fixed laws, for

otherwise action and science would be impossible. Hence both realism and idealism are in a difficulty. Realism is driven to regard consciousness as epiphenomenal, a mere phosphorescence, and to call up a *deus ex machina* to account for its existence, since it is not movement nor part of the system of movements. "All realism is thus bound to make perception an accident, and consequently a mystery." Idealism in its turn cannot find a way to the scientific system except by conjuring up some arbitrary hypothesis, such as a pre-established harmony between things and mind. "It is science now that will become an accident and its success a mystery."[1]

Bergson here uses the word realism in a restricted sense as equivalent to radical mechanism. Both common sense and science are realistic, though not necessarily materialistic; they have no need to discriminate. Dr. Johnson, typical of the former, was a realist when he thought that he had refuted Berkeley by kicking a stone; as a matter of fact, he failed to see the point of Berkeley's argument. Spencer, typical of science when it begins to philosophise, talks of the insanities of idealism, and treats us to a pyrotechnic display of "transfigured realism" composed of snippets from almost every philosophy under the sun. There is also a philosophical realism which has nothing in common with epiphenomenalism; it may be classed with common sense and science as not accepting idealism, though for different reasons. The old materialism held that mind

[1] *Matter and Memory*, p. 16.

is a mode of motion, is matter in motion: the new materialism (epiphenomenalism) holds that mind is as much bound up with motion as the shadow with the substance. It can neither find room for mind inside the system of movements governed by the principle of the conservation of energy, nor can it explain it as outside that system, nor can it say why it should arise at all; but it always insists on the primacy of the physical. Refuge is then sought in agnostic monism, which regards mind and matter as "two aspects" or attributes of one substance, about which nothing is known or can be predicated—a kind of Spinozism. But this theory does not explain how we can go from one to the other, or how the interaction or parallelism between the two arises. It usually lapses into epiphenomenalism. Haeckel, indeed, equates spirit with force and his monism is, therefore, essentially materialism.

If materialism and idealism fail, we appear to be driven to dualism. Common sense is dualistic; it accepts the separate and independent existence of mind and matter, as Descartes did, as an obvious fact. The difficulty begins when an attempt is made to explain the connexion. This union, for Descartes, was a miracle, but modern thought dislikes the miraculous and is ultimately driven back to one of three views; either the mental is a translation of the material, or the material is a translation of the mental, or they are two parallel and predetermined translations of one original—the unsatisfactory monism already referred to, which denies their

reciprocal influence and therefore cannot explain the fact of their interaction. Bergson holds that the difficulties arise from considering the physical and the mental as duplicates of one another, an assumption made by all three theories.

Both idealism and realism start from a common postulate, that perceiving is the same as knowing. This Bergson denies, for an examination of the nervous system shows that it is in no sense an apparatus for making, or even for preparing, representations. There is only a difference of degree between the so-called perceptive faculties of the brain and the reflex functions of the spinal cord; in the latter case the response is immediate, in the former it takes time and admits indetermination. Thus the body is an instrument of action, and of action only. Ordinary perception is always mingled with memory and feeling. However rapid it may be, it takes time and therefore involves memory. For the purpose of his inquiry Bergson proposes to leave aside, for the present, memory and feeling and to consider perception as "pure" perception, but this perception, we must remember, is only an ideal. It exists in theory rather than in fact. We have seen that the material world is an aggregate of images or objects acting and reacting according to mechanical laws. All the images are there, but they are not all perceived, and perception consists in detaching, from the totality of images, those upon which my body may act. My body, an image like the rest, receives movements from, and transmits movements to, all

the other images, but I do not perceive all these movements. Perception creates none of them; it merely chooses some among them, those in which my body is interested. We shall return later to the method of this choice, or discernment. Meanwhile we may repeat that perception merely selects certain movements out of the whole. All the rest escape me, but nevertheless do not differ from those which I perceive. "My consciousness of matter is then no longer either subjective, as it is for English idealism, or relative, as it is for the Kantian idealism. It is not subjective, for it is in things rather than in me. It is not relative, because the relation between the 'phenomenon' and the 'thing' is not that of appearance to reality, but merely that of the part to the whole." [1]

This may seem to lead back to realism, but we have seen that realism can find no point of contact between mind and matter, unless it be the unintelligible epiphenomenon of the materialists. Nor is there any conceivable relation between the Kantian "thing-in-itself" and the "sensuous manifold" from which we construct our knowledge. Both forms of realism "raise homogeneous space as a barrier between the intellect and things"; both take it as a necessary medium, the first as real and upholding the things it contains, the second as ideal and co-ordinating our sensations. Thus realism, like idealism, assumes that conscious perception points to knowledge, rather than to action. But, says Bergson, *suppose* that extensity is prior

[1] *Matter and Memory*, p. 306.

to homogeneous space and that this space is logically posterior to material things and to the pure knowledge we can have of them, and that homogeneous space concerns our action only, being something we stretch beneath the continuity of matter in order that we may cut it up to suit our needs and activities; *then*, many difficulties vanish; science becomes intelligible, for we can understand how each thing influences all the others; and the insurmountable barriers which realism raises between the extended world and our perception of it are overthrown. For the extended world ceases to be divided and our perception ceases to be unextended. There is a point of contact between the two. Bergson thus regards concrete extensity as a continuum, not a homogeneous continuum which would be indistinguishable from nothing, but a continuum whose real articulation differs from that which we and science effect.

This, however, is in the nature of an anticipation, and we return to consider the mechanism of perception. When external movements reach the body they set up other movements in it, or, as we say, the nerves receive a stimulus. The nervous system consists of two main parts, the spinal column and the brain. A study of the two shows that there is a difference of degree, but not of kind, between them. In reflex action the centripetal movement is reflected at once in a centrifugal movement determining a muscular contraction. In the case of the brain, the operation and effect are more complex. The centripetal

movement first mounts to the brain and then after a definite interval descends to the same cells of the spinal cord which intervened in the reflex movement. What has happened in the brain? Not a miraculous change from movement to representation, but the provision of a power to choose. "The brain is no more than a kind of central telephonic exchange: its office is to allow communication, or to delay it. It adds nothing to what it receives."[1] It passes on the movement either to one chosen organ of reaction, or to these organs as a whole. "In other words, the brain appears to us to be an instrument of analysis in regard to the movement received, and an instrument of selection in regard to the movement executed." The more perfect the brain, the larger the scope which it allows to our action. That this indetermination is introduced by the passage through the brain is not a theory but a fact, and Bergson claims that we can deduce from it the possibility, and even the necessity, of conscious perception.

Perception is seen to appear when the reaction to a stimulus is not immediate; the more immediate the reaction, the more must perception resemble a mere contact. When the reaction allows room for suspense, that is, takes time, the distance increases at which a living being will be conscious of the movements that interest it. Thus our independence varies as objects are more or less distant from us. Our zone of indetermination allows of

[1] *Matter and Memory*, p. 19.

an *a priori* estimate of the number and distance of the things with which we are in relation. Hence "perception is master of space in the exact measure in which action is master of time." Perception, then, is a necessary but variable relation between the living being and the more or less distant influence of the objects which interest it.

There is no need to attempt a deduction of consciousness, because when we assume an aggregate of images we assume consciousness, and the assumption is unavoidable whatever theory of matter we may accept. The representation of a present image or object consists in isolating it, in suppressing all the movements of the image which are of no interest to the living being which perceives it. There is thus only a difference of degree between *being* and *being consciously perceived*. Our consciousness is discernment; we retain those movements of the image which concern us and discard those which do not. Our "zones of indetermination" allow the real action to pass through, while the virtual action remains. External images reach the sense-organs, modify the nerves and influence the brain. The movement passes through the brain and expands after a certain time into voluntary action. The question, then, is not how perception arises, but how it is limited; why all the movements of the universe are not perceived. Everything happens *as though* your perception were a result of the internal movements of the brain, but what the brain really gives is a plan of the movements among which

you have the choice. Conscious perception and cerebral movement correspond, for the simple reason that they are both functions of the indetermination of the will. The cerebral state (our action already begun) merely continues the perception (virtual action).

Perception is in the object itself; suppress the object and perception ceases. In hallucination and in dreams we have a perception without a corresponding object, but in these psychical states memory plays the chief part. A lesion of the nerves stops perception, for the nervous system cannot then utilise the vibrations it receives. The nervous system is a mere conductor, transmitting, sending back or inhibiting movement. The sensory nerves give the detail of perception, but "perception as a whole has its true and final explanation in the tendency of the body to movement" (p. 41). If I suddenly lose my sight, I can execute the same movements as before, but external objects no longer give me the same occasion to do so. Perception is a sort of question addressed to my motor activity from the outside. In infancy our representation is impersonal; it gradually becomes *ours*, as we observe that all the other images vary, while one particular image, my body, remains invariable. My body becomes a centre to which I refer all the other images. It thus occupies a privileged position, and I distinguish between inside and outside, between my body and other things, although the distinction is only a distinction between the part and the whole. There

is an aggregate of images and there are, within this aggregate, "centres of action" from which the interesting images appear to be reflected; thus perceptions are formed and actions made ready. "*My body* is that which stands out as the centre of these perceptions; *my personality* is the being to which these actions must be referred." Our perceptions are, then, outside us, where we have to act upon them, that is, in space, and we must study them as they pass from the periphery to the centre,—the method suggested by common sense and immediate experience. The idea that we project outside ourselves states which are purely internal leads to endless misconceptions.

Three main objections are made to the externality of perception, all based upon facts wrongly interpreted. No doubt our senses require education, but the aim of this education is to harmonise the senses with one another. The opposite theory maintains that our sensations constitute extensity by their juxtaposition; that the idea of a material object is given by the synthesis of inextensive sensations. But, Bergson objects, it is not easy to see how these sensations can acquire extension, nor why the sensations should be referred to one part of space rather than to another, nor why the stable object, thus constituted, should be common to the experience of all of us and subject to the laws of nature. The theory makes matter unreal and unknowable, because it has been despoiled in advance of all that reveals it to us; further, it makes spirit as unknow-

able as matter, for spirit becomes an "undefinable power of evoking sensations we know not whence, and of projecting them, we know not why, into a space where they will form bodies."

The second objection brought forward relates to what is called the specific energy of the nerves; the fact that, for example, the same electric current will cause a sensation of light in the eye, hearing in the ear and taste in the mouth. It has been inferred from this that different causes acting on the same nerve excite the same sensation, and that the same cause, acting on different nerves, provokes different sensations. But these laws are of doubtful validity. It may well be that the electrical stimulus contains different components, and that the office of each sense is to extract the component which interests it; for instance, in the mouth chemical changes would arise, and these changes are what we call tastes. But in any case these sensations are affections within the body rather than images perceived outside it.

A third argument against the externality of perception is drawn from the fact that we pass by insensible degrees from the representative state which occupies space to the affective state which appears to be unextended; and it is inferred from this that all sensation is unextended, and that the process of perception consists in externalising internal states. But the argument depends on the assumption that affective states are absolutely unextended, and we shall see, by an examination of affection, that this

is not really the case. The prick of a pin passes by insensible degrees from a mere contact to an affection, in this case pain. As the pin is withdrawn, the affection gradually becomes a representation. It appears from this that there must be only a difference of degree between affection and perception; and as affection is clearly bound up with the body, it is assumed that the same must hold of perception, and therefore that external perception is formed by projecting an affection into space. Both realists and idealists adopt this line of reasoning, and argue that "our representation of the material universe is relative and subjective, and that it has, so to speak, emerged from us, rather than that we have emerged from it."

Bergson acknowledges the facts but contests the conclusions drawn, maintaining that as external objects are perceived by me where they are, so my affective states are experienced where they occur, that is, at a given point in my body. It is therefore necessary to examine pain and to show that there is an essential difference between a perception and an affection. Pure perception exists only in theory, in fact it is always mixed with affection and memory. We have now to restore these elements. So far perception has been considered as "a fragment of reality," but consciousness mingles with the perception of other bodies that of its own body, that is, its affections or feelings; and with its intuition of the actual moment that of other moments, that is, its memory. Perception indicates the possible

action of my body on others—possible, because it and they are separated by a greater or less space. When this distance is reduced to nothing, that is, when my body acts upon itself, my perception sketches out a real and no longer a virtual action.

The affective states may be considered as lying between extended images and unextended ideas, and it is usually, but wrongly, assumed that they are themselves unextended, and further, that they are merely more intense perceptions. Bergson, however, holds pain, for instance, to be a local effort, unavailing because isolated; there is a precise moment when pain intervenes: it is when the part affected, instead of accepting the stimulation, repels it; and there is therefore a difference in kind between perception and affection. My perception is outside my body; my affection within it; the surface of my body, the boundary of the internal and external, is the only part of space to be both perceived and felt. Bergson's assertion that pain is in the place where it is felt is opposed to the usual doctrine, that pain is felt in the brain—a doctrine held to be supported by experience, for a patient may complain of pain in a limb which has been amputated. But such an ascription may be classed with hallucination and explained in the same way. It is true that a nerve does not feel; but if pain is not in the nerve, neither is it in the brain; nowhere in the nervous system are there conscious centres. Affective sensations are usually only vaguely localised, and the erroneous conclusion is drawn that they are

unextended; then, that they differ merely in degree from perceptions; and then, that as sensations are acknowledged to be within us, or subjective, so our perceptions also must be subjective.

On this theory affective sensation and our own nature remain equally a mystery. We cannot tell how these unextended sensations arise, whence they come or what purpose they serve. But if, instead of starting from affection, we start from action, that is from our faculty of effecting changes in things, we may be able to find an answer. Pure perception is then seen to be a part of things, and affective sensation "is one with the necessary modifications to which, in the midst of the surrounding images that influence it, the particular image that each one of us terms his body is subject" (p. 69).

Pure perception gives us an uninterrupted series of instantaneous visions, which consciousness threads on the continuous string of memory. That this is the chief work of consciousness in external perception is clear from the consideration that, when we react to stimulation, the choice of the reaction cannot be the work of chance. The choice is likely to be inspired by past experience; there must be an appeal to the memories which analogous situations have left behind them. Indetermination, if it is not to be pure caprice, requires the preservation of the images perceived.

We have now to reinstate memory in perception, in order to correct our conclusions and to determine more precisely the point of contact between con-

sciousness and things. For memory, the survival of past images, must mingle with our perception of the present, and may even take its place; and for this reason perception is less objective in fact than it appeared to be when considered simply in itself. Bergson maintains that we can know neither mind nor matter unless we get rid of the capital errors, that memory is merely a function of the brain, and that there is only a difference of intensity between recollection and perception. As the cerebral state continues, but does not beget, our perception of the present object, so, too, it cannot give birth to the recollection of it, although it may prolong and convert into action that recollection when once it has been summoned up. As our perception of the present object is something of that object itself, our representation of the absent object must be a phenomenon of quite another order, since between presence and absence there are no degrees. And he appeals to experience to judge between the two theories.

Perception and memory always interpenetrate, and it ought to be the business of the psychologist to dissociate them, and so prevent the confusion which arises from these mixed states being regarded as simple. "Restore . . . the true character of perception; recognise in pure perception a system of nascent acts which plunges roots deep into the real; and at once perception is seen to be radically distinct from recollection; the reality of things is no more constructed or reconstructed, but touched, penetrated, lived; and the problem at issue between

realism and idealism, instead of giving rise to interminable metaphysical discussions, is solved, or rather dissolved by intuition." [1]

In this way we might obtain an inkling of the true nature of matter, for it might be known in itself if we could disengage memory from perception, since the subjectivity of perception is mainly lent to it by memory. Perception is never instantaneous; it always occupies a certain duration, and our successive perceptions are therefore never the real moments of things but moments of our own consciousness. If we could eliminate memory altogether we might pass from perception to matter, from the subject to the object. All questions relating to subject and object, therefore, should be expressed in terms of time rather than of space. So, too, by isolating pure memory, we might learn something of spirit. If between the perception of matter and matter itself there is but a difference of degree, matter ceases to be a mysterious body or to exercise powers other than those we perceive. The nervous system, for instance, can possess physical properties only. But materialism has always held that consciousness is born of the interplay of material elements, and, to support that position, asserts the relativity of even perceived and sensible qualities. Spiritualism (*i.e.* any philosophy which allows spirit an existence of its own) usually follows the same path, overlooking the fact that the only method of refuting materialism is to show that matter is precisely what it appears to

[1] *Matter and Memory*, p. 75.

be. This is the attitude of common sense, and for this reason common sense believes in spirit.

But memory, by importing the past into the present, contracts into a single intuition many moments of duration and thus compels us to perceive matter in ourselves, whereas, in the absence of memory, we should perceive matter within matter. As pure perception gives us the whole or at least the essential part of matter, memory must be, in principle, a power absolutely independent of matter. If, then, spirit is a reality, it is here that we may come into touch with it experimentally. "And hence any attempt to derive pure memory from an operation of the brain should reveal on analysis a radical illusion." Superficial psychology is most ready to find the origin of the phenomena of memory in cerebral activity alone, because these phenomena are at the point of contact between consciousness and matter, and because even the adversaries of materialism have no objection to treating the brain as a storehouse of memories. Bergson proposes to show that the cerebral process answers only to a very small part of memory, that it is rather the effect than the cause; and that then it might be possible to assert the independent reality of spirit, and to throw some light on its nature and on its interaction with matter.

Bergson has maintained that the brain is an instrument of action, and not an instrument of representation, but it was impossible to prove this by an appeal to experience because both his thesis

and the one he opposes lead to precisely the same consequences. But the empirical study of memory may and must decide between them. For "if the necessary and sufficient cause of perception lies in a certain activity of the brain, this same cerebral activity, repeating itself more or less completely in the absence of the object, will suffice to reproduce perception: memory will be entirely explicable by the brain."[1] His second conclusion, that in pure perception we touch the reality of the object in an immediate intuition, was, again, not verifiable experimentally; but if it can be shown that the difference between perception and recollection is a radical difference in kind, the presumption will be that there is in perception something which is entirely absent from memory, a reality intuitively grasped.

Proceeding now to the examination of memory, Bergson finds that it takes two forms; the past may survive in motor mechanisms, that is as a bodily habit, or it may survive in independent recollections. The practical, and usual, function of memory, the utilising of past experience for present action—recognition—must therefore take place in two different ways. Sometimes it lies in the action itself and in the automatic setting in motion of a mechanism adapted to the circumstances; it then proceeds from a present object and is effected by movements; at other times it implies an effort of the mind, which seeks representations in the past in order to apply them to the present; it then issues from the

[1] *Matter and Memory*, p. 83.

subject. There is a third question, how these representations are preserved, and what are their relations with the motor mechanisms.

Bergson's discussion of memory is a magnificent effort in psychological analysis. Here we must be content to indicate his main conclusions, with a view to showing their connexion with his theory of mind and body. A minute examination of the evidence of normal and pathological psychology leads to the conclusion (to put the matter very shortly) that the arguments for the theory that the brain is a deposit or storehouse of memories are drawn from localised disorders of memory. But, if this deposit theory were true, characteristic lesions of the brain would correspond to definite gaps in memory. A careful inquiry proves that such a correspondence does not exist, but that in the presence of these lesions the whole faculty is diminished in vitality, as if the subject had difficulty in bringing his recollections into contact with the present situation. This leads to a study of recognition, the process by which past and present come into contact with each other. In passive recognition everything is explained by the motor apparatus which habit has set up in the body; if this apparatus is destroyed, lesions of the memory may result. Active, or attentive, recognition requires the regular intervention of memory-images; and these will have to set going in the brain the same machinery that perception sets to work to produce actions; if this machinery is out of order, damage results to the sensorial and motor areas

rather than to the recollections themselves. Memory persists but cannot result in action. Recognition is not effected by a mechanical awakening of memories that are asleep in the brain. It implies a tension in consciousness, "which goes to fetch pure recollections in pure memory in order to materialise them progressively by contact with the present perception."

An analysis of pure recollection shows that between recollection and perception there exists a radical difference of kind. English idealism finds only a difference of degree between them, between the reality of the object perceived and the ideality of the object conceived; and therefore regards perception as only a true, or veridical, hallucination, and holds that we construct matter from our internal states. This metaphysical problem coincides with a psychological problem which we can solve by direct observation. For if the memory of a perception were only a weakened perception, we might mistake, for example, the perception of a slight sound for the recollection of a loud noise. And why should we relegate a weak perception to the past? Why should we regard it as a recollection at all? Memory is truly not a regression, but a progress from past to present. We start from pure memory which, by means of motor diagrams supplied by the body, passes into memory-images and finally into action. Our present is not a more intense past; it is sensory and it is motor; it is, above all, the state of our body. Our past no longer acts, but it might act,

and will act by inserting itself in a present of which it borrows the vitality. "The past is idea; the present is ideo-motor." The state of the brain continues a remembrance and gives it a hold on the present by the materiality which it confers on it. But pure memory is a spiritual manifestation.

Bergson then discusses associationism and the birth of the simplest general ideas. He shows how nominalism and conceptualism revolve in a circle, each having in its favour mainly the insufficiency of the other. The cardinal error of associationism is to set all recollections on the same plane, whereas there are thousands of different planes of consciousness between the plane of action and the plane of pure memory. The general idea is experienced before it is represented. The mind starts from a similarity felt or lived, or automatically acted, and returns to a similarity intelligently perceived, or thought. Thus the earliest general ideas are formed by the combined work of mind and body, and the essence of the general idea is to be unceasingly going backwards and forwards between the plane of action and that of pure memory. Associationism misses the movement, and makes the general idea coincide sometimes with one extremity, sometimes with the other—so that the general idea escapes us. Generality really consists in the transit of the mind as it passes from one term to the other, in a movement between action and representation.

We have seen that the essential function of the body, always turned towards action, is to limit,

with a view to action, the life of the spirit. The body cannot beget or cause an intellectual state but, by the place which at each moment it occupies in the universe, it selects or indicates the parts on which we can lay hold. It does not store up recollections, but chooses those useful for ultimate action. We have seen that pure perception places us within matter, and that by pure memory we penetrate into spirit. Concrete perception always unites the two; it is the meeting-place of soul and body. Pure perception is an ideal; perception is never in fact "pure" or instantaneous; it always takes time, fills duration, prolongs the past into the present, and thereby partakes of memory or spirit. Perception is thus always concrete perception, and by taking it in its concrete form we compress within its narrowest limits the problem of the union of soul and body.

We saw how the difficulties of realism and idealism seemed to drive us to dualism, and it was suggested that certain considerations, there stated hypothetically,[1] might lead to a reconciliation of the opposed elements into which the dualism of soul and body may be broken up. The opposition is threefold, that of the unextended and the extended, that of quality and quantity, and that of freedom and necessity; and it is clear that if any light is to be thrown on the correlation of body and mind it must be by suppressing or toning down these oppositions.

[1] See above, pages 143, 144.

By replacing perception in things, we see that things participate in the nature of our perception. Hence material extensity must be like the undivided extension of our own representation, and we may find in the idea of extension the possible approach to each other of the extended and the unextended. Pure intuition is undivided continuity, but to suit the needs of action we break up this continuity into words and objects. As we have broken it up, so we feel compelled again to give it an artificial unity of our own devising. Both empiricism and dogmatism start from phenomena so reconstructed; both deal with artificialities, for the articulations are not those of reality. Dogmatism accepts the phenomena thus made discontinuous, and its subsequent synthesis must be arbitrary. Hence arise systems of metaphysics equally plausible which refute each other, and the last word remains with a critical philosophy, which pronounces all knowledge to be relative and truth inaccessible. Such is the history of philosophy in general—but there is an alternative. We may seek experience at its source, or rather before it becomes properly *human* experience. "The relativity of knowledge may not, then, be definitive. By unmaking that which these [practical] needs have made, we may restore to intuition its original purity and so recover contact with the real."[1]

A discussion of motion leads Bergson to the conclusions to which reference has already been

[1] *Matter and Memory*, p. 241.

made.[1] Every movement is absolutely indivisible, any division which we see in it being the work of our imagination. There are real movements, and movement, whatever its nature, is an indisputable reality; therefore it cannot be merely a change of place. I can assure myself of its reality when I produce it after having willed to produce it; it then appears to me, within me, as a change of state or quality. It cannot be otherwise when I perceive changes of quality in things. Between these two limits lie the movements of external bodies. How are we to distinguish here between real and apparent movement?

"All division of matter into independent bodies with absolutely determined outlines is an artificial division." Material extensity is given to us as a moving continuity, in which everything changes and yet remains; we represent the change by homogeneous movements in space and the permanence by bodies, and so set up a discontinuous universe, the discontinuity which we effect being due to the necessities of living, that is, of action. But science, as it progresses, gets further and further away from the discontinuous and nearer and nearer to a conception of matter as a change of tension or energy. Hence neither science nor consciousness is opposed to the proposition that real movement is rather the transference of a state than of a thing. If we now look back at our conclusions we see the distance—at first sight impassable—between qualities or sensations and

[1] See above, p. 114.

movements progressively narrowing. Although the difference between quality and pure quantity is irreducible,[1] for pure quantity is an abstraction, Bergson's argument leads to the conclusion that real movement is rather quality than quantity and is, as such, akin to consciousness, capable of prolonging its past into its present, and capable, by repeating itself, of engendering sensible qualities. In quality itself we can divine something other than sensation, for if we believe in realities, distinct from that which is perceived, we recognise that the order of our perceptions depends on them. Our concrete perception sums up an enormous multiplicity of moments; for example, in the space of a second, red light, the light whose vibrations are least frequent, accomplishes 400 billions of vibrations. These would take 25,000 years to count at the rate of 500 a second, if we could count as fast, and yet we perceive the whole in a second. Thus, in perception we condense enormous periods of an infinitely diluted existence into a few, more differentiated, moments of an intenser life. "To perceive means to immobilise." There is therefore only a difference in rhythm of duration, in internal tension, between sensible qualities as we see them and the same qualities treated as calculable changes. My perception is in a sense within me, because it contracts all these movements into one, although the one (my representation) does not differ essentially from the many (the material universe).

[1] See *Time and Free Will*, Chap. I.

It is quite certain that the objects of the material universe have not the precise limits which we attribute to them. Our perceiving marks out these limits in accordance with the needs of our practical life. To do this we have to imagine homogeneous space, "a wholly ideal diagram of arbitrary and infinite divisibility," and to throw it beneath concrete extensity like a net, whose meshes we may make as large or as small as we please. At the same time memory solidifies into sensible qualities the continuous flow of things. Necessity consists in a reaction adopting the rhythm of an action and continuing it in the same duration. Freedom implies a being of intenser life, who is not compelled to adopt the duration of matter, but who, by condensing it into his own, conquers necessity. Perception and memory combine to form sensible qualities by solidifying the successive moments of the real, and to effect this solidification we have to imagine homogeneous time, a diagrammatic design of succession in general.

Homogeneous time and space, then, are neither properties of things nor forms of our sensibility. They express, in an abstract way, the double work of solidification and division which we effect on the moving continuity of the real in order to get starting-points for our own operation, in short, to introduce into it real changes. It is usually assumed both by idealism and realism, that there is nothing common between different kinds of qualities, or between extensity and pure quality, but Bergson

maintains that all qualities have something in common and share in extensity in different degrees. Both English idealism and atomistic realism have a common postulate, that the different orders of sensible qualities are discontinuous, and that there is an abrupt transition from the purely extended to the unextended. But the whole trend of contemporary psychology is to recognise that all sensations are in some degree extensive.[1]

It is easy to see how, for convenience in expression and to suit the practical ends of life, we invert the natural order and regard rest as anterior to motion and take rest as its point of reference and abiding-place. We next suppose that the movement is divisible like the line by which we represent it and equally denuded of quality, with the result that all relation between movement and quality is for us destroyed. We have then two parallel series, one in space and one in consciousness, whose correspondence is a mystery. But if we put ourselves face to face with immediate reality, we find at once that there is no essential difference between perception and the thing perceived, between quality and movement.

We saw that consciousness and matter, soul and body, meet each other in perception, but that dualism assumed a consciousness with inextensive sensations over against a matter conceived as an extended multiplicity, and could find no way from one to the

[1] Cf. J. Ward, "Psychology" in the *Encyclo. Brit.;* and W. James, *Principles of Psychology.*

other. If, however, the divisibility of matter is entirely relative to our action thereon, the difficulty disappears. If we divest ourselves of "the prejudices of action" sensation recovers extensity, concrete extensity recovers its continuity and indivisibility, and homogeneous space becomes a mere symbol, which interests us when we act on matter but not when we speculate on its essence.

Ordinary dualism can never understand how the spirit acts upon the body or the body upon spirit, because it has made the one spatial and the other extra-spatial, and such hypotheses as a parallelism or a pre-established harmony are merely a confession of ignorance. But the difficulties are much less in a dualism which starts from *pure* perception, where subject and object coincide, and which follows the development of the two terms in their respective durations—matter tending more and more to be only a succession of infinitely rapid moments which are equivalent to each other; and spirit, which is present in perception as memory, declaring itself more and more as a prolonging of the past into the present, as a progress, and as a true evolution.

We have said that the distinction between mind and body should be expressed in terms of time rather than of space, and it remains to be shown how the relation then becomes clearer. A spatial distinction does not admit of degree; it leaves no room for a possible transition between the two. But a temporal

distinction does admit of degree: we may regard the humblest function of spirit as binding together the successive moments of the duration of things, and thus coming into contact with matter, and being indeed in this way first of all distinguished from matter, and we can therefore conceive an infinite number of degrees between matter and fully developed spirit—"a spirit capable of action which is not only undetermined, but also reasonable and reflective. Each of these successive degrees, which measures a growing intensity of life, corresponds to a higher tension of duration and is made manifest externally by a greater development of the sensori-motor system."[1] This complexity is only the outward aspect, the material symbol of the inner energy which allows the being to free itself from the rhythm of the natural flow of things and to retain the past in order to influence the future. There are thus all possible intensities of memory and all degrees of freedom. No doubt an irreducible distinction exists between matter and the lowest degree of freedom or of memory, but we can see how the one is grafted upon the other—and it is this union which ordinary dualism finds so inexplicable. Pure perception, mind without memory, is really part of matter; matter does not remember the past but repeats it unceasingly, since each series of moments can be deduced from the preceding. But a being which evolves freely creates something

[1] *Matter and Memory*, p. 296.

new every moment; its past is deposited within it in the form of memory. Thus the past is acted by matter, imagined by mind. "Spirit borrows from matter the perceptions on which it feeds, and restores them to matter in the form of movements which it has stamped with its own freedom."

PARALLELISM

I. PSYCHO-PHYSICAL PARALLELISM AND POSITIVE METAPHYSICS

At a meeting of the Société française de Philosophie [1] Bergson submitted the following thesis :—

(1) If psycho-physical parallelism is neither rigorous nor complete, if to every determined thought there does not correspond an absolutely determined cerebral state,[2] it will be the business of experience to mark with increasing accuracy the precise points at which parallelism begins and ends.

(2) If this empirical inquiry is possible, it will measure more and more exactly the separation (*écart*) between the thought and the physical conditions in which this thought is exercised. In other words, it will give us a progressive knowledge of the relation of man, as a thinking being, to man, as a living being, and therefore of what may be termed *the meaning of life.*

[1] Reported in the Bulletin of the Society, June 1901.

[2] "Si à toute pensée déterminée ne correspond pas un état cérébral déterminé absolument." Bergson's meaning is, perhaps, clearer if the terms are transposed—"If to every given cerebral state there does not correspond an absolutely determined thought." In the course of the discussion Bergson was asked whether *determined* cerebral state meant a state *sui generis;* to which he replied, "Certainly; you can substitute *given.*"

(3) If this meaning of life can be empirically determined more and more exactly and completely, a *positive* metaphysic is possible; that is to say, a metaphysic which cannot be contested and which will admit of a direct and indefinite progress. Such a metaphysic would escape the objections urged against a transcendental metaphysic and would be strictly scientific in form.

Students of Bergson's philosophy will refer to the report, where the thesis and discussion are given in full. The following are a few of the points of interest touched upon in the course of the debate. Replying to criticisms, Bergson explained that the hypothetical form in which his thesis was couched was due to the fact that the second and third propositions obviously depended on the establishment of the first. In the case of the first, his *if* was a "*si* de politesse," for he could not assume that everyone would accept his own view of parallelism; but should the *if* be regarded as a "*si* de timidité" he would unhesitatingly replace it by a *since*, for he was himself entirely convinced that, while a relation or correspondence existed between the psychical state and the cerebral activity, there was in no sense a parallelism between the two.

The intelligibility of an idea comes to it little by little, by the application which is made of it. An idea can be measured only by the richness of what it suggests, by the extent, fertility and certainty of its application, by the increasing number of the articulations which it enables us to lay bare in the

real, in a word by its own inner energy. The Cartesian criterion of intelligibility was much more empirical than those philosophers supposed. It was one with their experience. Our own experience is vastly greater than theirs; it has compelled us for more than a century to renounce the dream of a universal mathematic. The very renunciation has allowed new sciences to come into being,—sciences which observe and experiment without any thought of ever reaching a mathematical formula. There is no disloyalty to the Cartesian method in insisting that it should advance step by step with the materials to which it is applied. What we must seek always to preserve is the same precise adjustment of form to matter.

The old spiritualism was doubly wrong when it confined its attention to the higher faculties of the mind. It appeared to be *arbitrary*, because it exposed itself to the objection that, by considering matter in its most rudimentary forms and mind in its most advanced states, it precluded any possibility of reducing thought to movement. There is a certain monism, nearly related to materialism, which dualistic spiritualism has never been able to refute, just because spiritualism limited itself to the two extremes. There is, Bergson thinks, one way, and one only, of refuting monism, that is by meeting it on its own ground, by taking the most rudimentary psychical state and by showing that an actual and discernible gulf exists between this state and the physical conditions on which it rests. Spiritualism

must come down from the heights on which it has entrenched itself. What we need is a philosophy of wider scope, open to all men, progressive in nature.

Again, the old spiritualism was necessarily *infertile;* whence comes the disdain which many men of science have felt for it. To say that mind is not reducible to matter may be true enough, but it leads to nothing. If, on the other hand, we place ourselves at the point where the two concepts meet, we may make important discoveries. We must go to experience. Bergson illustrates this method of inquiry from his own researches in *Matter and Memory*, and suggests that in this way spiritualism might be made acceptable to those who at present reject it, since it would be seen to be, of all doctrines, the most empirical in its method and the most metaphysical in its results.

We cannot, of course, prove a negative or demonstrate the impossibility of parallelism, but we may yet arrive at a result which will present a high degree of probability, while falling short of rigorous, absolute, mathematical demonstration. The metaphysic Bergson has in view is a science empirical in its method, progressive, and content, like the positive sciences, to regard its conclusions as only provisionally definitive. It must put aside all prepossessions and presuppositions and confine itself to the study of facts. Bergson found that such a study was possible only in the case of memory. After giving five years to the examination of the

literature of aphasia "I arrived at this conclusion, that between the psychical fact and its cerebral substratum there existed a relation which answers to none of the ready-made concepts with which philosophy supplies us. There is neither an absolute determination of one of these states by the other, nor a complete independence between them, nor a production of one by the other, nor a simple concomitance, nor a rigorous parallelism, nor, I repeat, any one of the relations which can be reached *a priori* by the manipulation or composition of abstract concepts." The relation is *sui generis* and can be found only in experience.

This experience is, no doubt, incomplete, but we must not on that account appeal from a real experience, which we have, to a possible experience, of which we can as yet say nothing. We must leave aside the abstract and the ideal, for reality is much too complex to be reduced to the simple ideas which lead directly to the affirmation of parallelism. The truth we shall reach will be empirical, but not necessarily verifiable at once in an empirical way—we must rather seek to arrive at a reasonable certitude by the accumulation of probabilities. Such was the method adopted in the second and third chapters of *Matter and Memory*. Parallelism was not denied by reason of negative considerations, but by the formulation of a positive thesis, admitting of verification and progressive development, which had therefore nothing in common with "le passage à la limite" of certain metaphysical doctrines. Let

us try to grasp experience as closely as we can. With this new science as our matter, let us renew the effort made by the older metaphysicians with their more simple science. We must break with mathematical ideals, take into account the sciences of biology, psychology and sociology, and on this wider basis build up a metaphysic which may rise higher and higher through the continuous, progressive and organised effort of all those philosophers whom a common respect for experience links together.

In such a philosophy the ordinary distinction between the relative and the absolute will no longer hold, for the relativity of experience (implying an absolute which transcended it) was a deduction from the mathematical ideal of the old metaphysics. We may hope to reach the absolute without abandoning the thread of experience and by rising towards those regions of experience in which intuition requires continually renewed effort. Progress will come not from the manipulation of ready-made concepts but from this effort of intellectual dilatation. The effort is essential; whither it will lead us we can only vaguely surmise.

In reply to a question as to how he reconciled the conclusions of *Matter and Memory* with those of the first chapter of *Time and Free Will*, Bergson said that in the *Essai* he had criticised the notion of intensity, not as being false in itself, but as needing interpretation. The intensity of a psychical state is a fact; he questioned the assumption that this

intensity was a magnitude, and endeavoured to show that the word had two very different meanings. The intensity of a simple state is a certain quality or nuance of that state, which informs us, by means of the association of ideas and our acquired experience, of the approximate magnitude of the external cause from which it proceeds. The intensity of a complex state is something quite different. It is the *felt* multiplicity of elements which go to form the state, or rather the multiplicity of elements into which it might be decomposed. Strictly speaking, this multiplicity does not exist in the conscious state itself, except potentially; it appears only when we reflect upon the state. It is in this second sense of the word that degrees of tension are attributed to consciousness. These degrees are not to be regarded as measurable or as having size; we might call them successive shades. Tension and extension were not in his opinion simple logical limits, since he had tried to show that we directly *experience* both the one and the other. Experience, too, proves that they do not differ so radically as to make their union impossible.

The metaphysic suggested by Bergson aims at escaping the objections urged by Kant against metaphysics in general, and more especially at removing the opposition which Kant established between metaphysics and science. If we read the *Critique* carefully, we see that Kant has made the criticism, not of reason in general, but of a reason fashioned to the rules and exigencies of the Cartesian

mechanism and the Newtonian physics. If there is *one* science of nature (and Kant does not appear to question it), if all phenomena and objects are spread out on one and the same plane in such a way as to furnish an experience which is unique, continuous and altogether complete on the surface (and such is the constant hypothesis of the *Critique of Pure Reason*), then there is only one kind of causality in the world, all phenomenal causality implies rigorous determination, and we must seek freedom outside experience. But if there is not *one* science of nature but *several;* if there is not *one* scientific determinism but *several* scientific determinisms of unequal rigour, then we must distinguish different planes of experience; we can go, without quitting the field of facts, from physical necessity to moral freedom.

If mysticism means, as nowadays it usually does, a reaction against positive science, "the doctrine which I defend is from beginning to end a protest against mysticism; since it seeks to rebuild the bridge (broken down since Kant) between metaphysics and science. This divorce between science and metaphysics is the great evil from which our philosophy suffers. We like to say that the faults are on the side of the scientists. Let us ask if we too may not have some reason to reproach ourselves. Let us ask whether our metaphysic cannot be reconciled with science simply because it lags behind science, being the metaphysic of a rigid and purely mathematical science, of the

science which flourished from Descartes to Kant, while the science of the nineteenth century appears to have aspired to a much more supple form and not always to have taken mathematics as its model."

Returning to the question of parallelism, Bergson insists that it is a purely metaphysical hypothesis; that the onus of proof lies strictly with its upholders, and that it would be refuted if it could be shown that all the known facts point to a different theory. We must distinguish between correspondence and parallelism. No one denies that a relation exists; the question is whether this relation is a rigorous parallelism, whether we can say that a competent interpreter could read in the movements of the brain all that passes in the mind. Bergson holds that we never think without a certain substratum of cerebral activity, but that the relation is not one which can be determined *a priori;* it demands long and continued research. Until this research has been made, a prudent science will not allege more than a relation or a correspondence, although it may provisionally accept parallelism as a useful working hypothesis, for it is really the business of the philosopher rather than of the scientist to determine precisely in what the relation consists.

II. THE PSYCHO-PHYSIOLOGICAL PARALOGISM[1]

THERE are two views of the equivalence or parallelism alleged between a psychical state and the corresponding cerebral state. Some hold that the cerebral state itself gives rise in certain conditions to a psychical phosphorescence which illumines the design of the brain; others, that the cerebral state and the psychological state form, respectively, two series of phenomena which correspond to one another point by point, without it being necessary to attribute to the first the creation of the second. Both views affirm an equivalence or parallelism, which may be defined in the following ways:—(1) A determined psychical state follows from a given cerebral state. (2) A superhuman intelligence, who could watch the movements of the atoms of which the human brain is made and who possessed the key to psycho-physiology, would be able to read in the brain all that was passing in the corresponding consciousness. (3) Consciousness says nothing more than what is going on in the brain; it merely expresses it in a different language.

[1] A paper read before the International Congress of Philosophy held at Geneva in September, 1904; published in the *Revue de Métaphysique et de Morale*, November, 1904.

Such a doctrine of rigorous parallelism comes directly from the Cartesian metaphysics. Physiologists cannot be blamed for accepting it, for it was a useful principle of research and it was no business of theirs to assign limits to the validity of its application. But the dogmatic affirmation of parallelism is quite another matter; for parallelism then ceases to be a guide to inquiry and becomes a metaphysical hypothesis. Bergson holds that the correspondence exists so far as thought issues in action; that a psychological fact will determine the concomitant cerebral state, but that the converse is not necessarily true. The object of his present paper, however, is not to discuss parallelistic theories but to show that parallelism as currently held implies a fundamental contradiction.

He maintains that the thesis of parallelism rests on an ambiguity in the terms; that it cannot be correctly enunciated without destroying itself; that the dogmatic affirmation of parallelism covers a dialectical artifice by which we pass surreptitiously from one system of notation to another, while taking no account of the substitution which has been made. Needless to say, the substitution is effected quite innocently, and indeed almost inevitably unless we take care to state the thesis in the two systems of notation *in turn*. Otherwise the ambiguity may escape us.

When we speak of external objects we have the choice of two systems of notation; we may treat them as *things* or as *representations*. No confusion

will arise as long as we adhere strictly to the notation we have chosen. For the idealist there is nothing more in reality than that which appears to my consciousness or to consciousness in general. It would be absurd to speak of a property of matter which cannot become an object of presentation. "In short, idealism is a system of notation which implies that all the essential of matter is, or may be, displayed (*étalé ou étalable*) in the representation which we have of it, and that the articulations of the real are those of our representation. Realism rests on the opposite hypothesis. To say that matter exists independently of representation is to hold that beneath our representation of matter there is an inaccessible cause of this representation; that behind perception, which is of the actual, there are hidden powers and virtualities; it is, in fine, to affirm that the divisions and articulations visible in our representation are purely relative to our method of perceiving." These definitions are made only for the purpose of the present paper; the terms are used to denote two notations of the real, of which one implies the possibility, and the other the impossibility, of identifying things with the representation, spread out and articulated in space, which they offer to a human consciousness. It will be recognised that each system must exclude the other, and that it is consequently illegitimate to apply both systems at the same time to the same object.

Bergson now proposes to show (1) that if the

idealist notation is chosen, the affirmation of a parallelism (in the sense of equivalence) between the psychical state and the cerebral state implies a contradiction; (2) that the realist notation gives the same contradiction, transposed; (3) that the thesis of parallelism can be sustained only if we adopt the two systems of notation at the same time and in the same proposition. This mental conjuring comes to us naturally because the terms of the problem suggest the two points of view, the word "brain" making us think of a thing, and the word "thought" of a representation.

Let us first place ourselves at the idealist point of view. At a given moment a certain number of objects occupy the field of vision; these objects affect the retinal and other nerves and cause a modification of the atomic and molecular grouping of the brain-matter. What is the relation of this cerebral modification to the external objects?

Parallelism amounts to a claim that we can, once we are in possession of the cerebral state, suppress all the perceived objects without thereby changing anything of what is passing in consciousness, for it is the cerebral state caused by the objects—and not the objects themselves—which determines our conscious perception. From the idealist point of view such a proposition involves an absurdity. For idealism, external objects are images and the brain is one of them. There is nothing more in things than what is or may be displayed in the image which they present. There is therefore nothing

more in cerebral movements than movements; we cannot find more than movements in the brain nor can we draw more from it. To say that the image of the surrounding world comes from, or is in any way expressed by, this image involves a contradiction, since these two images, the external world and the intracerebral movement, have been assumed to be of the same nature, and since the second image is by hypothesis a very small part of the field of representation when the first image fills that field completely. The assertion that the cerebral movement virtually contains the representation of the external world may be intelligible if we hold that the movement is something *lying under* the representation we have of it, that is to say, a mysterious power of which we perceive only the phenomenal manifestation. But the assertion is at once seen to be contradictory if we hold a doctrine which reduces the movement itself to a representation, for it is equivalent to saying that a small part of the representation is the entire representation.

Idealism may properly say that the cerebral modification is an *effect* of the action of external objects, but in that case parallelism disappears, for the rôle of the brain is limited to giving the plan of the motor articulations. The brain is in that respect indispensable to representation and cannot be injured without the representation suffering. But the brain does not give a plan of the representations. A representation itself, it could do so

only if it ceased to be a part of the representation and became the whole. From a strictly idealist point of view the thesis of parallelism amounts to this, that the part is the whole.

But the truth is that we pass unconsciously from the idealist point of view to a pseudo-realist point of view. We began by making the brain a representation like the others; its movements are representations which do not cause the other representations but are given along with them. We are led insensibly to regard the brain and its movements as *things*, that is, as causes hidden behind a certain representation. This passage from idealism to realism is facilitated by the supposition that, in memory, my body or some part of it has the power of calling up absent images. To this Bergson replies that it is impossible, on the idealist hypothesis, to have a representation of an object in the *complete* absence of the object itself. His theory is worked out in *Matter and Memory*.

Bergson now considers parallelism from the realist point of view. The essence of realism is to suppose that there is behind our representations a cause which differs from them. Some realists hold that the cerebral states actually create the representation —the so-called epiphenomenon; others, that these perceptions and these movements are merely two aspects of a reality which is itself neither movement nor perception; but all agree in affirming parallelism. Here again we find a contradiction. Idealism does not distinguish the object from the represen-

tation, and therefore has a right to say that an object which gives an isolated representation is itself isolable. This is precisely what realism denies; it regards as artificial or relative the lines of separation which our representation traces among things, and defines the object not by its entry into our representation but by its solidarity with the whole of an unknowable reality.

You begin by taking a brain in which external objects excite representations. You then banish the external objects and say that the cerebral modification can by itself produce representations. But if you banish the objects, you banish also the cerebral state which borrows from them its properties and its reality. You can retain the cerebral state only by passing to the idealist notation, which posits as *de jure* isolable what is isolated in representation.

Your hypothesis compels you to regard representation as a function of the cerebral state *and* of the external objects which determine it. Parallelism detaches the cerebral state and maintains that the state can itself express the representation of the objects. From a strictly realist standpoint the thesis reduces itself to the contradictory proposition that a relation between two terms is equivalent to one of them.

But realism always shifts its ground. We can say that reality in general exists behind representation; but as soon as we begin to speak of a reality in particular we make the thing more or less coincide with the representation we have of it.

Realist while it posits reality, realism becomes idealist as soon as it makes any affirmation about it. When we are engaged in scientific investigation we are always more or less idealist (as Bergson has defined the term) for science is the consideration of isolated parts of reality in their mutual relations. The hypothesis of the realist is, therefore, here only an ideal which serves to remind him that his explanations of reality will never be complete. He cannot prevent himself hypostatising this ideal; and he hypostatises it in the displayed representations which are for the idealist reality itself. Thus, for the realist, these representations become so many *things*, that is, reservoirs of hidden virtualities; and he comes to consider the intracerebral movements (erected now into things and no longer into simple representations) as containing potentially the entire representation. That is what his affirmation of psycho-physiological parallelism amounts to. He forgets that he had placed the reservoir outside representation and outside space, and that his hypothesis was always that reality was either undivided or articulated otherwise than representation is articulated. By making a part of reality correspond to each part of the representation, he articulates the real like the representation, unrolls reality in space, and abandons realism to enter into idealism for which the relation of the brain to the rest of representation is clearly that of the part to the whole.

You considered at first the brain as we see it

and as we cut it out from the rest of our representation: it was then only a representation, a part of the whole, and we were in idealism. You then passed abruptly to a reality which *subtended* the representation; but this reality is subspatial, which amounts to saying that the brain is not an independent entity. You have now no parts of reality but a real whole unknowable in itself, over which the whole of our representation extends. We are now in realism; but neither in the one case nor in the other are the cerebral states the equivalent of the representation; the whole of the perceived objects will still enter (although now in a different form, *cette fois dissimulé*) into the whole of our perception. But if you proceed to articulate reality, in detail, in the same way as the representation, you lose all distinction between the two. You are now back in idealism, and should remain there; but you do not. You keep the brain as it is represented but forget that the real, unfolded in the representation, can no longer contain those hidden virtualities of which realism speaks; you thus erect the cerebral movements into an equivalent of the entire representation. There is a perpetual see-saw from idealism to realism and back again effected so rapidly that you miss the movement and imagine yourself astride both theories combined into one. It is this apparent reconciliation of two irreconcilable affirmations which is the very essence of the thesis of parallelism.

Bergson now proceeds to discuss some of the

subsidiary ideas which buttress up the main illusion and make its eradication difficult. His argument must be read as a whole to be properly appreciated, but enough, perhaps, has been said to indicate its nature. We are told that the reading of his address provoked a movement of surprise and inquietude among those who heard it; naturally enough, for most of his audience must have themselves often formulated the doctrine of parallelism without any suspicion of the contradiction on which Bergson alleges it to be based. In the discussion[1] which followed some speakers imagined that Bergson had been criticising idealism or realism, whereas he was only concerned to show that the doctrine of parallelism compels us to adopt both these standpoints at the same time and that the thesis, therefore, logically refutes itself.

[1] See *ibid.* pp. 1027 ff.

AN INTRODUCTION TO METAPHYSICS

THIS essay appeared four years before *Creative Evolution* and its main conclusions are incorporated in the later work. It is, however, of importance for the student, for it develops at greater length some of the leading ideas of Bergson's philosophy. The following is a brief summary.

All philosophers recognise two ways of knowing a thing; we may have a relative knowledge of it from the outside, or we may enter into it and so reach the absolute. The latter knowledge can only be given in an intuition, while the former comes from analysis. "By intuition is meant the kind of intellectual sympathy by which one places oneself within an object in order to coincide with what is unique in it and consequently inexpressible. Analysis, on the contrary, is the operation which reduces the object to elements already known, that is, to elements common both to it and other objects. To analyse, therefore, is to express a thing as a function of something other than itself." Science works, as a rule, by analysis, that is, by symbols. "If there exists any means of possessing a reality absolutely instead of knowing it relatively, of placing oneself within it instead of looking at it from outside points

of view, of having the intuition instead of making the analysis: in short, of seizing it without any expression, translation or symbolic representation—metaphysics is that means. Metaphysics, then, is the science which claims to dispense with symbols."

"There is one reality, at least, which we all seize from within, by intuition and not by simple analysis. It is our own personality in its flowing through time—our self which endures. We may sympathise intellectually with nothing else, but we certainly sympathise with our own selves." No image will enable us to express the development of our self in duration, and it is even less possible to represent it by *concepts*, that is, by abstract, general or simple ideas. We are, however, not dependent on images or concepts; the former may be useful, for they will indicate the attitude which consciousness must take up, but consciousness itself must make the effort by which the intuition is attained. Concepts are symbols substituted for the object they symbolise, and never give us more than an artificial reconstruction of the object; they present only the shadow of the reality. They may also be misleading, for the concept generalises at the same time as it abstracts, and so gives extension to the property, which then no longer coincides with the object. The results we reach will depend very much on the particular concept with which we start, and on the weight we attribute to this or that concept—and this weight will always be arbitrary. Hence there will be as many systems of philosophy as there

are external points of view from which the reality can be examined. In order to reach intuition metaphysics must transcend concepts. "Certainly, concepts are necessary to it, for all the other sciences work as a rule with concepts, and metaphysics cannot dispense with the other sciences. But it is only truly itself when it goes beyond the concept, or at least when it frees itself from rigid and ready-made concepts in order to create a kind very different from those which we habitually use; I mean supple, mobile, and almost fluid representations, always ready to mould themselves on the fleeting forms of intuition."

Whatever concepts are taken, they will not, either together or separately, enable us to penetrate into duration. But we do penetrate into it, and in this way an inner absolute knowledge of the self by the self is possible. Science, *i.e.* psychology, can analyse the intuition obtained, and it is the confusion between the functions of analysis and intuition which gives rise to the conflicts between systems. "It is incontestable that every psychical state, simply because it belongs to a person, reflects the whole of a personality. Every feeling, however simple it may be, contains virtually within it the whole past and present of the being experiencing it, and, consequently, can only be separated and constituted into a 'state' by an effort of abstraction or of analysis." If psychology is to advance, it must abstract or analyse, but we must remember that a detached mental state is not a part of the whole but an element in it, and it

is obviously absurd to attempt to reconstitute a thing with fragments of its symbol.

And yet such is the undertaking of both empiricist and rationalist philosophers who try to reconstruct personality with psychical states, for they confuse intuition with analysis, and the one is the very negation of the other. They look for the ego and find nothing but a phantom. Empiricism seeks for the original in the translation, where it cannot be, and then denies that it exists. Rationalism clings to the ego but makes its unity a form without content. The method is analogous in both cases; it consists in reasoning about the *elements* of a translation as if they were *parts* of the original. A true empiricism would endeavour by a kind of *intellectual auscultation* to feel the throbbings of the soul of the original; the task is, no doubt, extremely difficult, for the ready-made concepts which our thought employs are useless. Our search must be for a unique intuition, whence we can descend with equal ease to the conceptions of any particular school.

A concrete reality can usually be observed from two opposing standpoints, but the antagonistic concepts so reached will never make a thing. If, however, we start with an intuition of the reality, we can see how the concepts are opposed and how they are reconciled. To do this we must reverse the usual work of the intellect and pass from things to concepts. We generally aim at knowledge in order to satisfy an interest; "to label an object with a certain concept is to mark in precise terms the kind

of action or attitude the object should suggest to us." This method is right enough for ordinary life, but philosophy aims at grasping an object as it is in itself. If this effort of intuition is impossible there can be no philosophy.

Bergson now returns to consider the flux of duration, and he shows that analysis operates always on the immobile, while intuition places itself in mobility. Out of immobile diagrams we can never reconstruct the real, but out of the real, which is variability itself, we can by analysis obtain as many static views as we please. He illustrates this from movement in space, for it is impossible to reach movement from any number of immobile points, but movement is itself simple and clear, "immobility being only the extreme limit of the slowing down of movement, a limit reached only, perhaps, in thought and never realised in nature." Rest appears to our intellect to be anterior to movement, because the idea of rest is more useful for practical purposes. So, too, "the various concepts into which a change can be analysed are . . . so many stable views of the instability of the real." We must not apply to the mobility of the real a method created in order to give stationary points of observation on it.

The following is a brief summary of the principles on which the method of intuition rests.

1. There is a reality that is external and yet given immediately to the mind. Common sense is right on this point, as against the idealism and realism of the philosophers.

2. This reality is mobility. Rest is never more than apparent or, rather, relative. All reality therefore is tendency, if we agree to mean by tendency an incipient change of direction.

3. Our intellect starts from the immobile, takes up its position in ready-made concepts, and aims at utilising the real. Each sensation and concept is a practical question which our activity puts to reality and to which reality replies by a Yes or a No. The intellect allows the essence of the real to escape.

4. The difficulties of metaphysics arise from our use in philosophy of processes which we ordinarily employ for practical ends. Dogmatism has always attempted to reconstruct the mobility of the real with fixed concepts.

5. In this it was bound to fail, but it does not follow that we cannot grasp reality in some other way. The critics of dogmatism are tainted with the same vice.

6. The proper method is to proceed by means of that intellectual sympathy which we call intuition—a difficult method, for the mind has to do violence to itself. To philosophise is to invert the habitual direction of the work of thought.

7. Although never methodically practised, this inversion has given us all that is greatest in the sciences as well as all that is permanent in metaphysics. To it mathematics is indebted for the infinitesimal calculus, the generative idea of which metaphysics should extend to all qualities, that is, to reality in general.

8. Intuition, once attained, must find a mode of expression in well-defined concepts. Hence we often forget the metaphysical intuitions from which the rest of science has sprung. What is relative in science is the symbolic knowledge, reached by pre-existing concepts, which proceeds from the fixed to the moving. A truly intuitive philosophy would bring science and metaphysics together.

9. Modern science dates from the day when mobility was set up as an independent reality and studied as such by Galileo. But men of science have mainly fixed their attention on the concepts, the residual products of intuition, the symbols which have lent a symbolical character to every kind of science. Metaphysicians, in their turn, have done the same thing. Hence it was easy for Kant to show that our science is wholly relative and our metaphysics entirely artificial. For Kant science was a universal mathematic and metaphysics a practically unaltered Platonism. The intuition was hidden by the analysis to which it gave rise.

Nor is there anything mysterious in this faculty of intuition. Every one of us has had occasion to exercise it to a certain extent, but "we do not obtain an intuition from reality—that is, an intellectual sympathy with the most intimate part of it—unless we have won its confidence by a long fellowship with its superficial manifestations. . . . But metaphysical intuition, although it can only be obtained through material knowledge, is quite other than the mere summary or synthesis of that knowledge.

is distinct from these, we repeat, as the motor impulse is distinct from the path traversed by the moving body, as the tension of the spring is distinct from the visible movements of the pendulum. In this sense metaphysics has nothing in common with a generalisation of facts; and nevertheless it might be defined as *integral experience*."

CREATIVE EVOLUTION

BERGSON begins by contrasting our own existence, the only existence of which we have immediate knowledge, and the existence of inert matter. Our inner life is a continuous change, an endless flow, in which the whole of our past enters into our present to create an unforeseeable future. It is a personal history in which every moment is a new creation.[1]

Material objects, on the other hand, appear to have no history. Their future can be calculated, for time does not bite into them. Yet even in their case succession is an undeniable fact, and closer observation shows that they too have a history, which unfolds itself gradually as if it occupied a duration like our own. "If I want to mix a glass of sugar and water, I must, willy-nilly, wait until the sugar melts. This little fact is big with meaning."

The isolation of systems effected by science is not altogether artificial, for we can see that some systems are more properly isolable than others, and matter itself tends to form such systems, although the isolation is never complete. Science neglects the last fact for good reasons of its own. The universe *endures*, it is always creating forms and elaborating

[1] See above, "Duration and the Self."

the absolutely new. The systems isolated by science endure only because they are bound up with the whole; but if they were reintegrated into the whole, there is no reason why they should not then endure as we do. The same is even more true of the objects which our perception cuts out of "the universal interaction, which, without doubt, is reality itself." The living body which does the cutting out, which crystallises the flow of the real and so creates all the other bodies, is itself an intimate part of the whole, but it has been separated and closed off by Nature herself. It alone is individual, although individuality admits of any number of degrees and is never complete as long as one individual produces another, for living bodies are links in a chain. In unorganised bodies "the present contains nothing more than the past, and what is found in the effect was already in the cause." In the organic we find growth and unceasing change; life seems to search for individuality and to form systems naturally isolated.

Like the universe as a whole, the organism that lives is a thing that endures. Time is being inscribed in a register, however much our mechanistic instinct may lead us to think that time has no more reality for a living being than for an hour-glass. No mere hour-glass image, however, will make plain to us what growing old really is. We see that there is unbroken continuity between the evolution of the embryo and that of the complete organism, an insensible, infinitely graduated, continuous change of form. There must be an inner cause beneath

those visible effects which alone mechanism can explain, for the past persists in the present, and there is implied an appearance, at least, of organic memory. For we cannot explain a living body as we can explain an unorganised body, whose present state depends exclusively on its state at the previous instant. Nor is the inability due only to our ignorance, for we have here to take into account not only the immediate past but the whole of a very long history, whose future cannot be known until it has fallen back into the past. Our intellect naturally tends to take the easier path, but, as we shall see later, the intellect has been created by life and cannot pretend to explain life. We must remember the distinction we have made between concrete and abstract time; the latter is time as the mathematician understands it. The world the mathematician deals with is a world which dies and is reborn at every instant,—the world which Descartes was thinking of when he spoke of continued creation. In such a time evolution could not take place at all, for evolution implies duration as a connecting link. "Continuity of change, preservation of the past in the present, real duration—the living being seems, then, to share these attributes with consciousness. Can we go further and say that life, like conscious activity, is invention, is unceasing creation?"[1]

Transformism, the doctrine of biological evolution, is supported by continually growing evidence, and Bergson accepts it as a sufficient expression of the

[1] *Creative Evolution*, p. 24.

facts actually known ; but, whether the doctrine is accepted or not, its language at any rate forces itself upon all philosophy. But we must no longer speak of life in general as an abstraction. At a certain moment, in certain points of space, a visible current has taken rise and has become divided among species and individuals without losing anything of its force, rather intensifying in proportion to its advance. From the point of view of Weismannism, life is a current passing from germ to germ through the medium of a developed organism. There is a continuous and invisible progress like that of a consciousness. The appearance of a species is due, no doubt, to specific causes, but the form which it will take cannot be foreseen, because there is no repetition. The form is unique, and is a creation and not a synthesis, since in the domain of life the elements have no real and separate existence. "They are manifold mental views of an indivisible process. And for that reason there is radical contingency in progress, incommensurability between what goes before and what follows—in short, duration." Here again the intellect rebels, for it has been formed to guide us to action ; like common sense, it seeks to predict, but prediction requires repetition and the elimination of real time. It is the business of philosophy to break with scientific habits which are formed for a special purpose and to resist this bent of the intellect.

Bergson does not question the fundamental identity of inert matter and organised matter, but he denies

that living beings can be assimilated to the artificial systems which science cuts out within inert matter, for such systems are not parts, but merely partial views, of the whole. Life is no more made up of physico-chemical elements than a curve is composed of straight lines; life is not translation but transformation. Chemists may imitate the living by the unorganised, but they hold very different opinions as to the meaning to be given to these experiments, and science has not yet advanced a step toward the chemical synthesis of a living substance. The evolutionist hypothesis is by no means so closely akin to the mechanistic conception of life as it is generally supposed to be, for mechanism assumes that *all is given* and that perfect knowledge would give complete prediction, as may be seen in the writings of Laplace, du Bois-Reymond and Huxley. "Radical mechanism implies a metaphysic in which the totality of the real is postulated complete in eternity, and in which the apparent duration of things expresses merely the infirmity of a mind that cannot know everything at once." [1] But this "dazzling prospect of a universal mathematic" must be rejected, since it denies real time, that duration, the consciousness of which is the most indisputable thing in our experience.

Radical finalism, or teleology, fails for the same reason. It, too, assumes that *all is given*, and thus understood is only inverted mechanism. Succession becomes a mere appearance, as indeed does move-

[1] *Creative Evolution*, p. 41.

ment itself. However, if mechanism is rejected, any alternative doctrine must partake of finalism to some extent. There are those who reject external finality as absurd, and yet accept an internal finality which embraces only one living being at a time, but Bergson holds that the idea of a finality which is always internal destroys itself, for it is opposed to patent facts. Hence come the difficulties of vitalistic theories, for it is impossible to say exactly what is and what is not an individual. "If there is finality in the world of life, it includes the whole of life in a single indivisible embrace." Teleology and mechanism both go too far; they result from two complementary tendencies of mind, for in order to act we have to propose an end or make a plan, and this we can carry out only by assuming the law of causality. Both doctrines reject the unforeseeable; both conclude that all is given, for both respond to the same need, the need of fabrication; both agree in doing away with time, and ignore the fact that repetition is possible only in the abstract; both rest on a false conception of intellect and fail to see that ceaseless upspringing of something new which is the essence of reality; both are only external views of our conduct, and both miss the true character of our own evolution, which is, without doubt, that of the evolution of life.

Our reason, incorrigibly presumptuous, always imagines that a new object must go into one or other of its time-honoured categories. Such is the history of philosophy, which, rather than admit

the necessity of new categories or new methods of thinking, prefers to say that it has to do only with the relative, and which, while pretending to reject the absolute, does not scruple to make absolute judgments upon everything. The human intellect is rightly regarded as the principal result of evolution, but it cannot, as part of the whole, pretend to grasp the real nature of the evolutionary movement. It is itself a by-product of the vital activity and therefore requires to be supplemented by what we find in every other terminal point of evolution.

Bergson's philosophy of life claims to transcend both mechanism and radical teleology, although, as already suggested, it is nearer the second doctrine than the first. He regards the organised world as a harmonious whole, the harmony admitting of much discord, since in adaptation we see species and individuals acting from self-interest, and so possibly conflicting. Harmony exists in principle rather than in fact, is revealed in tendencies rather than in states, and is behind us, as a common impetus, rather than before us, as a common aspiration—and it is here that finalism is most mistaken. To speak of an end is to imply that all is given, and that the future can be read in the present. Life progresses and *endures* in time. "Of course, when once the road has been travelled, we can glance over it, mark its direction, note this in psychological terms and speak as if there had been pursuit of an end. Thus shall we speak ourselves.

But, of the road which was going to be travelled, the human mind could have nothing to say, for the road has been created *pari passu* with the act of travelling over it, being nothing but the direction of this act itself."[1] The finalistic interpretation, as Bergson proposes it, is not an anticipation of the future, but a particular mode of viewing the past in the light of the present. Finalism limits life too much in explaining it by intellect, which has been fashioned by evolution during the course of progress and which has been cut out of a wider reality, a reality undoubtedly creative, *i.e.* productive of effects in which it expands and transcends its own being. Such effects cannot have been given in advance and cannot therefore be taken as ends, although, once produced, they admit of a rational interpretation and must be viewed as ends as much, or more than, as results. Finalism eludes all precise verification. Bergson now proposes, while frankly accepting the evolutionist hypothesis, to show that mechanism is insufficient to account for evolution, and so to clear the way for a teleological theory which shall be sounder and wider than the classic conception known as radical finalism.

Bergson has said that life is the continuation of one and the same impetus, divided into divergent lines of evolution. Each of these lines will preserve something of the essential causes working along it, and this common psychological (*i.e.* psychical or spiritual) element will account for the

[1] *Creative Evolution*, p. 54.

fact that we find similar effects at the ends of two entirely different lines of evolution. Mechanism, on the other hand, works by the accumulation of accidents, and would be refuted "if it could be proved that life may manufacture the like apparatus, by unlike means, on divergent lines of evolution," and the proof would be stronger the wider the divergency of the lines and the greater the complexity of the structure.

Opinions differ as to the value to be placed on Bergson's proof, some writers denying that the premises lead to the conclusion he draws. However that may be, his incursion into the realm of biological theory is of great interest, for it shows how the philosopher of to-day must follow the scientists in experimental detail and discuss with them the results at which they arrive. If Spencer had not committed himself on the question of the hereditability of acquired characters,[1] his philosophy would no doubt have taken an entirely different form. Bergson passes in review the current theories of evolution, and maintains that none of them is sufficient to account for the facts, while each represents an aspect of the process. They are so many partial views of a reality which tran-

[1] As Dr. Ward says, there must be some inheritance of acquired characters, as otherwise there could have been no evolution at all. Each generation would start where the first started. Dr. Ward also notes Weismann's approval of Prof. H. F. Osborn's conclusion—"If acquired variations are transmitted, there must be some unknown principle in heredity; if they are not transmitted, there must be some unknown factor in evolution."

scends them all. This reality is the object of philosophy, and Bergson is thus led back to find in evolution an original impetus of life, passing from one generation to the next through the developed organisms which bridge the intervals between the generations.

In the second chapter Bergson discusses the divergent directions of the evolution of life, resulting in the mutually complementary forms of torpor, intelligence and instinct.

Evolution depends on two series of causes, "the resistance life meets from inert matter and the explosive force—due to an unstable balance of tendencies—which life bears within itself." In overcoming the resistance of inert matter, life seems to have succeeded "by dint of humility, by making itself very small and very insinuating."[1] In itself, life is tendency, developing in the form of a sheaf, and so creating divergent directions in which species will evolve, but with many blind alleys beside the two or three highways, of which one only, leading to man, has been wide enough to allow free passage to the full breath of life. An examination of some of these directions may enable us to form an idea of the original principle, the impetus or internal push which has carried life to higher and higher destinies. Adaptation to environment will explain much, but not the general direction of evolution,

[1] Bergson's metaphors here are not very informing. We know that living matter began on a humble scale, but how, or why, life, a spiritual force, humbles itself is not so clear.

still less the movement itself. Nor is the movement the realisation of a plan; the harmony is behind; in front we see increasing discord between species, stagnation, even retrogression, the accidental and the incoherent; and the study of these will make clear the main directions along which the impulse of life has moved. We shall find no plan, for nature is more than a plan, and before the evolution of life the portals of the future remain wide open. "It is a creation that goes on for ever in virtue of an initial movement. This movement constitutes the unity of the organised world—a prolific unity, of an infinite richness, superior to any that the intellect could dream of, for the intellect is only one of its aspects or products."[1]

The animal and vegetable kingdoms cannot be definitely distinguished as states, but they correspond to two divergent developments of life which tend respectively towards fixity and mobility, although these themselves are merely superficial signs of deeper tendencies, for there is an obvious relationship between mobility and consciousness. The vegetable draws its food directly from mineral substances and is able to dispense with movement and so with feeling. Both animal and vegetable cells are probably derived from a common stock, for each may show the characteristic tendency of the other. The harmony between the two was complete only at the start and was due to the same initial impulse. In the animal kingdom the sensori-motor

[1] *Creative Evolution*, p. 110.

system is, as Cuvier said, the whole animal; the other systems are there only to serve it, although this statement, of course, requires due qualification. The progress of the nervous system has been effected in the direction of a more precise adaptation of movements and in that of a greater latitude left to the living being to choose between them. The rôle of life is to insert some indetermination into matter, and the nervous system is "a veritable reservoir of indetermination." The vital impulse is a limited force and inadequate to the work which it attempts, just as in ourselves freedom is dogged by automatism. Life in general is mobility itself, but particular manifestations of life accept this mobility reluctantly, and constantly lag behind. They are relatively stable, and each of them appears to us as a *thing* rather than a *progress*, but the permanence of their form is only the outline of a movement. Maternal love shows us each generation leaning over the generation that shall follow; it shows us that each generation is a thoroughfare, and that the essence of life is in the movement by which life is transmitted.

Animal evolution has led along two divergent paths to instinct and intelligence. These two are different in kind, are opposite and complementary; they have not succeeded one another and still retain something of their common origin. Instinct is always to some extent intelligent and intelligence is always to some extent instinctive. Neither lends itself to rigid definition, for they are tendencies and

not things. They are two modes of psychical activity, and, above all, two methods of action on inert matter—a rather narrow view, perhaps, but useful for the purpose of distinguishing them. Human intelligence appeared with tools; if we see a tool, we feel sure that there must have been a man behind it; intelligence, in its original feature, is the faculty of manufacturing artificial objects, and more especially tools to make tools. Instinct, at the ideal limit, can use those tools only which are part of the animal itself, and we cannot draw a definite line between the activity of instinct and that of living matter. Instinct is therefore necessarily specialised, while the tools constructed by intelligence can take endless forms and so open out an unlimited field to activity. The two represent divergent solutions, equally fitting, of one and the same problem.

It is sometimes asked how far instinct is conscious. Bergson points out that there are two kinds of unconsciousness; in the first, consciousness is absent, as in a falling stone; in the second, it is nullified, as in automatic action when "representation is stopped up by action," for if the action is arrested consciousness may reappear. It was there, but neutralised. Consciousness signifies hesitation or choice; it measures the interval between representation and action. In instinctive actions there is little left to choice unless the instinct is thwarted, but in intelligence choice is essential and constant. Both have consciousness in different degrees, and

the real difference between the two is found in the fact that "whatever, in instinct and intelligence, is innate knowledge, bears in the first case on *things* and in the second on *relations*."

Philosophers distinguish between the matter of our knowledge and its form; the matter is given in perception; the form is the totality of relations set up between these materials in order to constitute a systematic knowledge. Intelligence, so far as it is innate, is the knowledge of a form; instinct, of a matter. The latter is categorical, intensive knowledge; the former hypothetical and extensive knowledge, and, although primarily directed towards practical utility, is by no means confined to it. Hence "there are things which intelligence alone is able to seek, but which, by itself, it will never find. These things instinct alone could find; but it will never seek them." The intellect is relative to the needs of action, and, given action, the very form of the intellect can be deduced from it. Knowledge is not a product of the intellect, but, in a sense, part of reality. We must not follow Spencer in explaining the intellect as the impression left on us by the general characters of matter, for the order inherent in matter is intelligence itself, but this question is discussed in the next chapter. Bergson's present inquiry is psychological rather than philosophical, and is made from the point of view of common sense.

The intellect aims, first of all, at constructing, and for this purpose regards organised matter as

inert; its chief object is the unorganised solid, and it forms a clear idea only of the discontinuous and the immobile. When we say that there is a space, a homogeneous and empty medium, we imply a power to carve reality as we like, for this space is the plan of our possible action on things, a view taken by mind. The intellect can decompose according to any law and recompose into any system. We are social beings and communicate by signs; language has only a limited number of signs, but they must be extensible to an infinity of things; hence the signs of intellect are mobile, while the instinctive sign is adherent to the thing signified. The mobility of words enables the intellect to pass from things to ideas, but the word, in its turn, again converts the idea into a thing. In order that the intellect may think itself clearly, it must perceive itself under the form of discontinuity; it therefore forms concepts which are separated like objects in space, stable symbols, for the use of which logic is the complete set of rules. Logic and geometry engender one another; they are most at home in matter; outside it, pure reasoning needs to be supervised by common sense. Thus the intellect tends to transform matter into an instrument of action; it is fascinated by the contemplation of inert matter, bewildered when it turns to the living. It can resolve the organised into the unorganised, but it cannot, without violent effort, "think true continuity, real mobility, reciprocal interpenetration, — in a word, that creative evolution which is life." The more science analyses

the further it gets from life; it represents *becoming* as a series of states, for thinking here is reconstituting, and we can reconstitute only with given, that is stable, elements. So, too, the intellect lets what is new in a history escape; it rejects the unforeseeable, but feels at its ease with repetitions of the old. It cannot grasp causes which are part of the effect and which have come into existence with the effect. It was not meant for this, and hence comes its natural inability to comprehend life.

Instinct, on the other hand, is moulded on the very form of life. If it were only conscious, it might explain everything to us. But it is doubtful whether science, with its present methods, will ever succeed in analysing instinct completely, for instinct and intelligence are too divergent; and we see that all the evolutionist explanations are unsatisfactory, since science is compelled to explain instinct in terms of intelligence, and so tacitly invites philosophy to consider things in another way. Instinct is sympathy. If this sympathy could extend its object and also reflect upon itself, it would give us the key to vital operations, just as intelligence guides us into matter; for the one is turned towards matter, the other towards life.

Bergson's remarkable indictment of intellect and his equally remarkable analysis of instinct lead to the definition of intuition; and intuition, we shall see, makes metaphysics possible, restores the bridge broken down since Kant, and so gives us a knowledge which science does not give, and enables us to

come in contact with the real. Intelligence through science, its work, will deliver to us the secret of physical operations; of life, it only claims to bring us a translation in terms of inertia. "But it is to the very inwardness of life that *intuition* leads us,—by intuition I mean instinct that has become disinterested, self-conscious, capable of reflecting upon its object and of enlarging it indefinitely" (p. 186). Our æsthetic faculty shows that an effort of this kind is not impossible. Intuition, it is true, will never attain a knowledge of its object comparable to that which science has of its own, but it may enable us to grasp what it is that intelligence fails to give us, and to indicate a way of supplementing it. It may bring intelligence to recognise its own limitations, and may transcend intelligence by introducing us into life's own domain, although we must not forget that intelligence has given intuition the push by which it rises above instinct.

Life, we may conclude, is connected with consciousness or with something that resembles it. Consciousness seems proportionate to the living being's power of choice. Bergson has shown in *Matter and Memory* that there is interdependence but not parallelism, between brain and consciousness, and that the latter outruns its physical concomitant, and he has pointed out in the essay, *Le Paralogisme psycho-physiologique*, the confusion on which the doctrine of parallelism rests. "The evolution of life, looked at from this point, receives a clearer meaning, although it cannot be subsume

under any actual *idea*. It is as if a broad current of consciousness had penetrated matter, loaded, as all consciousness is, with an enormous multiplicity of interwoven potentialities. . . . Life, that is to say consciousness launched into matter, fixed its attention either on its own movement or on the matter it was passing through; and it has thus been turned either in the direction of intuition or in that of intellect" (pp. 191, 192). Intuition could not go very far, and for the most part shrank into instinct, but intelligence, which is consciousness adapted to objects from without, opens to itself an unlimited field. It can moreover awaken the potentialities of intuition which still slumber within it. Thus consciousness appears as the motive power of evolution, and man comes to occupy a privileged place among conscious beings. He may be said to differ not only in degree, but also in kind, from the animal.

In the first chapter of *Creative Evolution*, Bergson has drawn a line of demarcation between the inorganic and the organised; he has pointed out that matter, as an undivided whole, must be a flux rather than a thing; he has thus prepared the way for a reconciliation between the inert and the living. In the second chapter he has shown that the same opposition is found between instinct and intelligence, and that they stand out from a background, which may be called consciousness in general and which must be coextensive with universal life. Intelligence, therefore, may be deducible from general consciousness, which embraces it. This genesis of intelligence and

the correlative genesis of material things are the subject of the third chapter. They are correlative enterprises, since intellectuality and materiality have been constituted, in detail, by reciprocal adaptation, and have both been derived from a wider and higher form of existence. It is there that we must replace them, in order to see them issue forth.

Psychology, cosmology and metaphysics have always taken intelligence as given; Bergson proposes to engender it in its form and in its matter, and the attempt, he tells us, is less bold than it may appear at first sight. Psychology hitherto has been content to show how a certain direction has been followed further and further by beings more and more intelligent; but, once we admit the direction, intelligence is taken as given. So, too, is it in a cosmogony like that of Spencer. When, again, metaphysics deduces *a priori* the categories of thought, it applies itself to a work of the same kind, though subtler and more self-conscious. Philosophers refuse to see the cleft between the organic and the inorganic; they assume that nature is one and that the function of intellect is to grasp it in its entirety. Hence comes the exaggerated confidence of philosophy in the powers of a single mind, and the fact that we usually have to take or to leave a philosophy as a whole. Bergson adopts a more modest view of the philosopher's work. "To act and to know that we are acting, to come into touch with reality and even to live it, but only in the measure in which it concerns the work that is being accomplished and the furrow that is

being ploughed, such is the function of human intelligence. Yet a beneficent fluid bathes us, whence we draw the very force to labour and to live. . . . Philosophy can only be an effort to dissolve again into the Whole. Intelligence, reabsorbed into its principle, may thus live back again its own genesis."[1]

The enterprise is necessarily collective and progressive, but is made difficult by our mental habits, for we are at once met by the objection that, while our intelligence may progress, we cannot get beyond it. But it may be found that action will cut the knot which reasoning has tied, and it has already been suggested that intelligence has detached itself from a vastly wider reality, although the separation is not clear cut. When a man who cannot swim finds himself in the water, he discovers an unsuspected solidity even in a fluid. So our thought must leap beyond its own environment, and perhaps find in the result a justification for the experiment. "But leap it must," says Bergson with fine emphasis. Swimming is an extension of walking, but walking would never teach a man to swim. The use of the intellect will never enable you to transcend intelligence. If you are to attain something higher, something different, "you must take things by storm; you must thrust intelligence outside itself by an act of will." We may thus break the vicious circle.

This is not possible on any of the ordinary intel-

[1] *Creative Evolution*, p. 202.

lectualistic views of the relation between metaphysics and science. For if philosophy takes its facts and laws from science, it becomes a mere "court of cassation" charged with registering in more precise language verdicts already pronounced. It may leave physical facts to positive science, for the physics and metaphysics of inert matter are very near each other, but if it does the same with biological and psychological facts, which science necessarily treats as inert, philosophy will be compelled to accept *a priori* a mechanistic conception of all nature. It would thus condemn itself to a perpetual see-saw between a metaphysical dogmatism, which erects into an absolute the factitious unity of science, and a scepticism or relativism, which extends to all the results of science the artificial character discerned in some of them. Hence reality would be either unknowable or limited to what science can tell us of it, and philosophy would always be laboriously rediscovering by metaphysics a unity assumed *a priori* at the start, for it cannot get out of its conclusions more than it has put into the scientific premises with which it began. Bergson thus supports the contention of the futility of all metaphysical philosophy elaborated by G. H. Lewes, although, unlike Lewes, he shows us a possible means of escape, the first essential of which is to draw a line of demarcation between the inert and the living, and so to rescue at least a part of science from the taint of relativity. For physics, though only in its general form, "touches the absolute," while, of the living, science

can give us but a conventional, symbolic and relative knowledge. Philosophy must get beyond the conceptual frames which science legitimately uses, and which it cannot help using if it is to extend our action on things. The combined methods will give us a knowledge of the absolute, of reality itself, incomplete and progressive, no doubt, but not external or relative. By transcending the pure understanding, we shall get back to the reality out of which matter and the intellect alike have been cut by an identical process.

Let us endeavour to get rid of externality and intellectuality and grip our own life in its most intimate depths. We then plunge back into pure duration, and we must, by a straining of the will, gather up as much as possible of the past and thrust it into a present which it will create by entering. We shall possess ourselves, at the limit, as ideally free. If we could now relax the strain completely, there would no longer be either memory or will, and we should, at the limit, get a glimpse of an existence which, lacking all duration, dies and is reborn every instant. Both limits are ideals never quite reached, but we may discern two processes opposite in their direction, and we may see that we pass from the first, that behind spirituality, to the second, that behind materiality and intellectuality, by way of inversion or simple interruption. As we pass out of duration, we feel the interpenetration of our conscious states becoming broken up, externalised and spatialised. Our personality de-

scends in the direction of space; our sensations are extensive in some degree, for the idea of unextended sensation is a mere view of the mind,[1] and the idea which it "forms of pure space is only the *schema* of the limit at which this movement would end." Once this idea of pure space is formed, we use it as a net to divide up matter according to the needs of our action. If matter were completely extended in space (as our senses and intellect represent it) there would be complete externality and independence between its parts, but we know that this is not the case, for the atom is a mere view of the mind, and it would be more correct to say, with Faraday, that all the atoms interpenetrate and that each of them fills the world. Yet science can cut up the universe into relatively independent systems without committing appreciable error. Hence we may say that "matter *extends* itself in space without being absolutely *extended* therein," and that, when science decomposes matter into isolated systems, it is transporting itself "to the terminal point of the movement of which matter simply indicates the direction." In conferring on matter the properties of pure space, science assumes as a fact what is only an ideal.

It is because he failed to distinguish degrees in spatiality that Kant was compelled to take space as ready made,[2] to suppose matter wholly developed into parts absolutely external to one another, and, finally, to conclude that there are only three alter-

[1] See *Matter and Memory*.

[2] See above, "Time and Space."

natives among which to choose a theory of knowledge: either mind is determined by things, or things by mind, or between the two there is a mysterious agreement. Bergson sees a fourth possibility, which did not occur to Kant, because he had put time, *a priori*, on the same plane as space, and because he failed to see that the mind overflows the intellect. This alternative consists in regarding the intellect as a special function of the mind, essentially turned towards inert matter, and in saying that "intellect and matter have progressively adapted themselves one to the other in order to attain at last a common form. This adaptation has, moreover, been brought about quite naturally, because it is the same inversion of the same movement which creates at once the intellectuality of mind and the materiality of things" (p. 217). Here we have the keystone of Bergson's thought.

Hence the knowledge given by our perceptions and by science is approximative, but not relative. In both cases revision will be necessary. "For a scientific theory to be final, the mind would have to embrace the totality of things in block and place each thing in its exact relation to every other thing," but science has to attack its problems one by one, and is, as a whole, relative to the order in which they happen to have been put. Therefore science is in some degree conventional, but in principle, so far as regards inert matter, it bears on reality itself. Thus, Bergson vindicates the claims of scientific knowledge, while limiting its domain.

But, as a consequence, the theory of knowledge becomes more difficult, for we have not only to determine the categories of thought but to engender them. We have seen how consciousness sketches within us a movement from pure duration to extension; matter, in its turn, carries the movement further in the direction of space, though without reaching it. Can we complete the chain? "Has metaphysics understood its rôle when it has simply trodden in the steps of physics, in the chimerical hope of going further in the same direction? Should not its own task be, on the contrary, to remount the incline that physics descends, to bring back matter to its origins, and to build up progressively a cosmology which would be, so to speak, a reversed psychology?" (p. 219).

A discussion of deduction and induction leads Bergson to the view that they both (and with them all intellect) find their ideal limit in geometry; they need spatial intuition behind them before they can work. They are products of the movement at the end of which is spatiality. This movement creates them in the mind, and creates also the "order" which we find in things. Our intellect runs naturally to space and mathematics, for intellectuality and materiality have been produced in the same way. Hence come both the success and the contingency of science. But there is a natural disinclination to accept the view that the order of matter produces itself automatically by the interruption of the inverse order, that it *is* this interrup-

tion, for the idea persists that there might be no order at all.

Bergson therefore holds that a theory of knowledge should begin with a criticism of disorder, in the sense of absence of order, and he says that "order" is the mind finding itself again in things. But the mind, as we saw, can go in two ways; sometimes in its natural direction of creative activity, sometimes, by an inversion, in the opposite direction which leads to extension and geometrical mechanism. There is order in both cases, but of a different kind. Our idea of a general order of nature is due to a confusion, unimportant for common sense but all-important for theory of knowledge, between the vital or willed order and the inert or automatic order, between, say, the order we find in a symphony of Beethoven and the order we find in astronomical phenomena. As soon as this distinction is made, the ambiguity that underlies the idea of disorder is dissipated. The main problem of the theory of knowledge is to know how science is possible, that is, to know why there is order and not disorder in things. Order is a fact but is regarded as contingent, but, Bergson maintains, it is contingent only in relation to the inverse order. Any state of things which is not one of two orders is the other and is necessarily conceived as the other. If I am looking for willed order and do not find it, I say there is disorder. The absence of one of the two orders consists in the presence of the other. Disorder implies the two kinds of order and is made of their

combination; it is not in any sense the substratum of order. "Absence of order" has no real meaning behind it, for we cannot deny one kind of order without affirming the other. The idea of the incoherent is due to the mind swaying between the two orders, the vital and the geometrical. The geometrical order has no need of explanation, being simply the suppression of the inverse order.

Thus "the real can pass from tension to extension and from freedom to mechanical necessity by way of inversion," and Bergson now proceeds to trace the ideal genesis of matter. The real, that is, the principle which has only to let go its tension—to *detend*—in order to *extend*, is supra-consciousness, which may be defined as consciousness attached to the *being made* and not, like our own consciousness, attached to the *already made*. By an effort of will we get a glimpse of this consciousness, but it is difficult for us to feel or grasp the pure willing. We must, however, try to install ourselves in it, and to go beyond it, if we are to get to the principle of all life and of all materiality. The history of philosophy shows that it is not impossible: "There is no durable system that is not, at least in some of its parts, vivified by intuition. Dialectic is necessary to put intuition to the proof, necessary also in order that intuition should break itself up into concepts and so be propagated to other men; but all it does, often enough, is to develop the result of that intuition which transcends it. . . . In short, dialectic is what ensures the agreement of our thought with

itself. But by dialectic—which is only a relaxation of intuition—many different agreements are possible, while there is only one truth."[1] Philosophers would agree and their object would be reached "if this intuition could be sustained, generalised, and, above all, assured of external points of reference in order not to go astray."

Wherever we see invention, genius, freedom, spontaneity or the appearance of the new we see creation of form, and to pass from this to the creation of matter is neither incomprehensible nor inadmissible if we can imagine matter constituted by a simple arrest of the action which generates form. When we rid ourselves of the view that creation took place once for all, we see the idea of creation merging in that of growth, and we see that the universe is not made but is being made. The source of its energies must be found in an extra-spatial process, for, as Bergson has said, extension appears only as a tension which is interrupted, and the order which we find in the concrete reality which fills this extension is a suppression of the inverse order, and a detension of the will would produce precisely this suppression. The direction which reality takes suggests a thing *unmaking itself*, and the opposite process by which a thing *makes itself* is, therefore, immaterial or psychological. Life as we know it is not pure creative activity, but is always attached to matter and subject to its laws. It does not stop the course of material changes downwards,

[1] *Creative Evolution*, p. 251.

but it seems to retard it. We must not think of things which are created and a thing which creates, for things and states are merely views, taken by our mind, of *becoming*. There are no things, there are only actions, an action unmaking itself and an action making itself. Worlds are still being born. God has nothing of the already made; "He is unceasing life, action, freedom. Creation . . . is not a mystery; we experience it in ourselves when we act freely." Things result from a solidification performed by our understanding; things cannot make themselves, but we know that our action increases as it goes on, that it creates in the measure of its advance. Things are constituted by the instantaneous cuts made by our understanding across a continuous flux. "Life is a movement, materiality is the inverse movement, and each of these two movements is simple, the matter which forms a world being an undivided flux, and undivided also the life which runs through it, cutting out in it living beings all along its track." From the two currents arises organisation, which for our senses and intellect takes the form of parts entirely external to other parts in space and time. To movement everything may be restored, and into movement everything may be resolved.

Bergson's comparison of life to an impetus or current is, as he says, only an image. Life is really of the psychological order, and, when we call it a multiplicity or a unity, we are using terms which are determinations of space or of (what comes to the

same thing) categories of the understanding. We cannot even say that we are, at a given moment, one or manifold; but unity and multiplicity, taken together, may serve to give a fair imitation of the mutual interpenetration and continuity which we find in ourselves. Such, too, is life in general until it comes into contact with matter, for matter divides actually what was but potentially manifold; individuation is the work of the two combined. "If our analysis is correct, it is consciousness, or rather supra-consciousness, that is at the origin of life. Consciousness, or supra-consciousness, is the name for the rocket whose extinguished fragments fall back as matter; consciousness, again, is the name for that which subsists of the rocket itself, passing through the fragments and lighting them up into organisms. But this consciousness, which is a *need of creation*, is made manifest to itself only where creation is possible" (p. 275).

The difference between animal and human consciousness is radical, for consciousness is synonymous with choice, invention, freedom. In man, and in man alone, it sets itself free. Elsewhere it has let itself be caught in the net of matter, that is of necessity. It is only in this sense that man is the "end" of evolution. Life, as we have said, transcends finality; there has been no project or plan, nor does nature exist for man. Man, indeed, might almost be called an accident, for the course of evolution might have made us far different, physically and morally, from what we are. A com-

plete and perfect humanity would be that in which the two forms of conscious activity, intuition and intellect, should attain their full development. In the humanity of which we are a part intuition is, in fact, almost completely sacrificed to intellect. "Intuition is there, however, but vague and above all discontinuous. It is a lamp almost extinguished, which only glimmers now and then, for a few moments at most. But it glimmers wherever a vital interest is at stake. On our personality, on our liberty, on the place we occupy in the whole of nature, on our origin and perhaps also on our destiny, it throws a light feeble and vacillating, but which none the less pierces the darkness of the night in which the intellect leaves us." It is the business of philosophy to gather together these fleeting intuitions, and so to introduce us into the spiritual life, but it must avoid the errors of those who would isolate this life from all the rest.

"Thus, to the eyes of a philosophy that attempts to reabsorb intellect in intuition, many difficulties vanish or become light. But such a doctrine does not only facilitate speculation; it gives us also more power to act and to live. For, with it, we feel ourselves no longer isolated in humanity, humanity no longer seems isolated in the nature that it dominates. As the smallest grain of dust is bound up with our entire solar system, drawn along with it in that undivided movement of descent which is materiality itself, so all organised beings, from the humblest to the highest, from the first origins

of life to the time in which we are, and in all places as in all times, do but evidence a single impulsion, the inverse of the movement of matter, and in itself indivisible. All the living hold together, and all yield to the same tremendous push. The animal takes its stand on the plant, man bestrides animality, and the whole of humanity, in space and in time, is one immense army galloping beside and before and behind each of us in an overwhelming charge able to beat down every resistance and clear the most formidable obstacles, perhaps even death." [1]

[1] With this eloquent passage the present sketch of Bergson's argument may close, for its very insufficiency may serve a useful purpose if it leads the reader to study for himself a book, which must long remain a landmark in the history of human thought. The fourth and last chapter is, however, by no means the least interesting of the whole. Bergson examines two illusions; one, the supposition that we can think the unstable by means of the stable, the moving by means of the immobile; the other, that we must go from nothing to something, from the void to the full; whence arise such questions as, Why do I exist? Why does anything exist? Why does the Principle of creation exist rather than nothing? Bergson endeavours to show that the idea of the nought is a pseudo-idea, and that the problems raised around it are, therefore, pseudo-problems. The discussion of the first illusion leads to his well-known illustration, that the mechanism of our ordinary knowledge is of a cinematographical kind. He shows how this feature of our knowledge, indispensable as it is for our action or for science, has affected the whole of philosophy, ancient and modern, rationalistic and scientific. If we cannot get beyond it, philosophy can give only a false view of reality; if we can get beyond it, and Bergson maintains that we can, we must ruthlessly "scrap" those philosophies which have made it their base.

LIFE AND CONSCIOUSNESS

As Bergson's "Huxley Lecture," delivered at the University of Birmingham, on May 29, 1911, is readily accessible to English readers,[1] it will not be necessary to consider it at any great length. It forms a simple introduction to the doctrines of *Creative Evolution*, the first part of the lecture consisting in the main of a restatement of Bergson's theory of consciousness.

Consciousness eludes precise definition; but we may say that it signifies, above all, memory; if it did not contain *some* memory, it would not be consciousness. It is also an anticipation of the future; it is therefore a hyphen, or tie, between past and future. Before we can say what is the use of such a tie, we must first ask what, in Nature, we are to regard as conscious beings.

We are sure of our own consciousness, and we infer from certain outward analogies that it exists in beings like ourselves. In us it seems to be in some way bound up with a brain, but as we descend in the animal scale we see the brain becoming more and more simplified until the nervous elements are

[1] Reprinted, with some additions, in the *Hibbert Journal* for October 1911. The same number contains Mr. A. J. Balfour's interesting criticism of *Creative Evolution*, and also the first part of Professor J. Arthur Thomson's *Is there One Science of Nature?*

merged in the mass of undifferentiated living tissue. We might fairly conclude that consciousness exists in all living matter; at the end of the scale, confused, weakened, but not reduced to nothing. But this might be going too far.

The brain is the organ of choice. If we descend to the amœba we seem to find even there a rudiment of intention, a certain choice of appropriate movements in response to outside stimulation. Choice implies a thinking of the immediate future, a profiting from past experience, a retaining of the past in order to project it within the future. It seems probable, therefore, "that consciousness is in principle present in all living matter, but that it is dormant or atrophied wherever such matter renounces spontaneous activity, and on the contrary that it becomes more intense, more complex, more complete, just where living matter trends most in the direction of activity and movement. . . . Consciousness in each of us, then, seems to express the amount of choice, or, if you will, of creation, at our disposal for movements and activity. Analogy authorises us to infer that it is the same in the whole of the organised world."

A mass of protoplasmic jelly like that of the amœba can develop in two ways, either towards greater activity and a more wide awake consciousness, or towards less activity and a slumbering consciousness. From this point of view, the entrance of life in the world is like the introduction of something which encroaches upon inert matter.

In inert matter we see mechanical repetition, and a subjection to mathematical necessity; in living beings we see indetermination and unforeseeability, choice, anticipation, consciousness. Life somehow succeeds in reconciling these apparently antagonistic forces. "Life, therefore, must be something which avails itself of a certain elasticity in matter—slight in amount as this probably is—and turns it to the profit of liberty by stealing into whatever infinitesimal fraction of indetermination that inert matter may present."

Consciousness seems to be like a power entering matter in order to draw the highest possible advantage from the elasticity it finds therein; on the side of movement, by setting free the energy drawn from matter and directing this energy in a chosen way; on the side of sensation, by an effort of concentration which seizes as a whole, in one moment, billions of events happening in things, and thus allows us to control them. We have then, on the one side, matter subject to necessity, and on the other consciousness, a force essentially free and essentially memory, which is continually organising with its past something new which is a real creation. "That these two forms of existence, matter and consciousness, have indeed a common origin, seems to me probable. I believe that the first is a reversal of the second, that while consciousness is action that continually creates and multiplies, matter is action which continually unmakes itself and wears out; and I believe also that neither the matter

constituting a world nor the consciousness which utilises this matter can be explained by themselves, and that there is a common source of both this matter and this consciousness."

It is impossible to dispute the idea of an evolution of species or to deny the part played in this evolution by adaptation to environment. But Bergson holds that adaptation explains the arrests of life at certain forms rather than the movement through which life becomes more complex and more efficient. If adaptation explains everything, why should life have gone on complicating itself more delicately and *dangerously?* We seem to see an impulse to run ever greater risks in order to arrive at ever greater efficiency. It is hard to survey the whole of the evolution of life without the impression that this impulse is a reality, that it has met with resistance, and that it has contained in itself, at least potentially and interfused, the two forms of consciousness that we call instinct and intelligence.

We seem to see an immense current of consciousness traversing matter in order to entice it to organisation and to make it an instrument of liberty, but scarcely escaping being itself ensnared in automatism. With man alone the chain has been broken, for in him liberty succeeds in freeing itself by setting necessity to fight against necessity. "I doubt that the evolution of life will ever be explained by a mere combination of mechanical forces. Obviously there is a vital impulse: what I was just calling an impulse towards a higher and higher

efficiency, something which ever seeks to transcend itself, to extract from itself *more* than there is—in a word, to create." Such a force must be precisely what is called a *spiritual* force. Matter seems to cut up consciousness and to give it greater precision; it provokes effort and renders it possible, and this it does by the unique nature of the resistance it opposes and the unique nature of the docility to which it can be brought, acting at one and the same time as obstacle and stimulus.

Whenever our activity is in full expansion Nature gives us a sign; this sign is joy—joy, not pleasure, for the latter serves only the preservation and propagation of the race. "True joy, on the contrary, is always an emphatic signal of the *triumph* of life." Wherever joy is, creation has been, and the richer the creation the deeper the joy. "If, then, in every province, the triumph of life is expressed by creation, ought we not to think that the ultimate reason of human life is a creation which, in distinction from that of the artist or man of science, can be pursued at every moment and by all men alike; I mean the creation of self by self, the continual enrichment of personality by elements which it does not draw from outside, but causes to spring forth from itself." Thus the passage of consciousness through matter may lead to distinct personalities, and may permit these personalities to test their force whilst at the same time increasing it by an effort of self-creation. Bergson has tried to show (in *Matter and Memory*) that in

pure consciousness nothing of the past is lost, the whole life of a conscious personality being an indivisible continuity, and he asks whether we may not then suppose that the effort continues *beyond* and that consciousness is preparing these personalities, by the very effort which each of them is called upon to make, for a higher form of existence? "If we admit that with man consciousness has finally left the tunnel, that everywhere else consciousness has remained imprisoned, that every other species corresponds to the arrest of something which in man succeeded in overcoming resistance and in expanding almost freely, thus displaying itself in true personalities capable of remembering all and willing all and controlling their past and their future, we shall have no repugnance in admitting that in man, though perhaps in man alone, consciousness pursues its path beyond this earthly life. This is as much as to say that, in my opinion, the aspirations of our moral nature are not in the least contradicted by positive science. . . . How could there be disharmony between our intuitions and our science, how especially could our science make us renounce our intuitions, if these intuitions are something like instinct—an instinct conscious, refined, spiritualised—and if instinct is still nearer life than intellect and science? Intuition and intellect do not oppose each other, save where intuition refuses to become more precise by coming into touch with facts scientifically studied, and where intellect, instead of confining itself to science proper (that is, to what can be

inferred from facts or proved by reasoning), combines with this an unconscious and inconsistent metaphysic which in vain lays claim to scientific pretensions. The future seems to belong to a philosophy which will take into account the whole of what is given."[1]

[1] This seems to be the most definite pronouncement in regard to a future life which Bergson has made. His doctrine is clearly based on his conception of personality, and that conception must be much richer than it is taken to be by such critics as Dr. F. B. Jevons. (*Cf.* his recently published *Personality.*) It is not easy to gather from his published writings what Bergson exactly means by personality, but, as it is said to be the subject of his Gifford Lectures, we may be content to wait.

PHILOSOPHIC INTUITION

In a paper[1] read before the Congress of Philosophy at Bologna in 1911, Bergson discussed philosophic intuition, and his remarks form a fitting pendant to the *Introduction to Metaphysics* published eight years before.

We see, he said, metaphysics at the present time seeking simplicity and a nearer approach to life. This is as it should be, for it is important that the complication of the letter should not make us lose sight of the simplicity of the spirit, of that which is essentially spontaneous in philosophic thought. To all who use the historical method a philosophical system appears at first sight as a complete edifice, of a skilful architecture, in which care has been taken to provide commodious lodging for every problem. We feel, as we contemplate it under this form, an æsthetic pleasure reinforced by a professional satisfaction. We not only find there order in complication (an order which we sometimes amuse ourselves by completing), but we are also pleased to think that we know whence the materials come and how the building has been constructed, and we finally come to see in the doctrine what we were seeking

[1] Printed in the *Revue de Métaphysique et de Morale*, November 1911.

there—a more or less original synthesis of the ideas amid which the philosopher lived.

Such a work of comparison is not a waste of time, for without this effort to reconstitute a philosophy with what it is not, and to connect it with what lay round about it, we should never perhaps succeed in reaching what it really is. Our minds are so made that we only begin to understand the new after we have made every effort to join it up with the old. But the more we seek to install ourselves within a philosopher's thought instead of working round about it, the more we see his doctrine becoming transfigured. Complication diminishes; the parts begin to unite; finally, the whole is brought to a single point, which we feel we might approach nearer and nearer even if we have to despair of ever quite reaching it.

In this point is something simple, infinitely simple, so extraordinarily simple that the philosopher has never succeeded in saying it. And that is why he has been talking all his life. The almost infinite complexity of his teaching is merely the incommensurability between his simple intuition and the means he has of expressing it. "What is this intuition? If the philosopher has failed to give its formula, we shall certainly not succeed. But what we shall come to recover and fix is a certain image lying halfway between the simplicity of the concrete intuition' and the complexity of the abstractions into which it is translated, an image fleeting and evanescent, which haunts, perhaps unseen, the

philosopher's mind, which follows him like his shadow among the twists and turnings of his thought, and which, if it is not the intuition itself, lies much nearer to it than does the conceptual and necessarily symbolical expression to which intuition must have recourse in order to furnish 'interpretations.' Let us mark well this shadow: we shall divine the attitude of the body which casts it. And if we take pains to imitate this attitude, or, better, to insert ourselves into it, we shall see again, in the measure of the possible, that which the philosopher has seen."

The first characteristic of this image, like that of the demon of Socrates, is its power of *negation* —it forbids. When the philosopher finds himself confronted by ideas currently accepted, by theses which appear to be evident, by affirmations hitherto taken to be scientific, it breathes into his ear the word—*Impossible!* A certain experience, confused perhaps but decisive, is felt to be at variance with the facts that are alleged and the reasons that are given. The philosopher begins by definitely rejecting certain things—the demon is already at work. Later, he may vary in what he affirms; he will not vary in what he denies. He may be led in idle mood to make deductions justified by every rule of logic, and lo! there suddenly comes to him the same feeling of impossibility. He has become external to himself and must return to intuition. This is the way in which a doctrine develops.

No philosopher can divorce himself from the

problems of his time, from the science of his time, from the ideas of his contemporaries and of his predecessors. To make the new understood, he must necessarily express it as a function of the old; in this way he obtains a concrete form for his thought, but it is nothing more than a means of expression. We must beware of regarding his system as a pretty piece of mosaic. We soon see that even where he seems to be repeating things already said, he is thinking them in his own way; and then we often fall into another mistake, less grave no doubt but more tenacious, and we regard his doctrine as representative of "a moment of an evolution." This truer view is still superficial and misleading. "A philosopher worthy of the name has never said more than a single thing. Even this he has not so much really said as tried to say. He has said only one thing because he has seen only one point; that, too, was less a vision than a contact; the contact has given rise to an impulse, the impulse to a movement; and if this movement, which is like a whirling or an eddying of a particular kind, is only made visible to our eyes by what it has collected on its path, it is none the less true that the dust raised might have been very different and yet the wind-eddy have been the same eddy. In this way, a thought which brings something new to the world is compelled to manifest itself through the ready-made ideas which it finds before it and which it draws along in its movement; it therefore appears to be relative to the period in which the

philosopher lived; but this is only an appearance. The philosopher might have come several centuries earlier; he would have been concerned with a different philosophy and with a different science; he might have set himself different problems; he would have expressed himself by means of different formulas; not a line perhaps of all that he wrote would have been what it is—and yet he would have said the same thing."

Bergson proceeds to illustrate his contention from Spinoza and Berkeley, dealing with the latter in detail and in a highly interesting and suggestive manner. He shows how the Berkeleian philosophy may be reduced to four propositions, none of which is strictly original. Yet in Berkeley's hands each of them implies the others. As a tricolour lantern will show now red, now green, and now white, although the source of light is always the same,[1] so the Berkeleian intuition shines through and informs the propositions upon which, by the accident of his age, it happens to have been thrown. Bergson's discussion does not lend itself to shortening; it is throughout in his happiest vein, and is marked by all the lightness of touch and sureness of expression which we have come to associate with his work.

Bergson enters a lively protest against the notion that philosophy is a synthesis, or unification, of the sciences. He pictures the scientist, after long study of a scientific method and laborious conquest of

[1] This is not Bergson's illustration.

its results, coming to the philosopher and saying—"Experience, aided by reasoning, leads so far; scientific knowledge begins here, ends there; such are my conclusions." The philosopher airily replies—"All right; leave it to me, and you shall see what I make of it. The knowledge you bring me incomplete—I will complete it. You offer me disjointed pieces—I will unify them. With the same materials, since it is understood that I am to limit myself to the facts which you have observed; with the same sort of work, since like you I shall use only induction and deduction,—I will carry it further and do it better than you have done it." Such a conception of philosophy does wrong to the scientist and still greater wrong to the philosopher, for it encourages the mischievous but prevalent view that philosophy begins where certitude ends. There would not be two ways of knowing, science and philosophy, if experience did not present itself to us under two different aspects, on the one hand in the form of facts which unfold themselves in the direction of distinct multiplicity and spatiality, on the other under the form of a reciprocal interpenetration which is pure duration, unyielding to law and measurement. In both cases experience implies consciousness, but consciousness directed in different ways.

Our ordinary thought is no doubt nearer to science than it is to philosophy. Its general categories are those of science, the highways traced by our senses across the continuity of the real are those

along which science will pass, perception is a budding science, science a grown-up perception; the two are two visions of the same kind, although of unequal precision and scope; above all, ordinary knowledge is restricted, like scientific knowledge and for the same reasons, to take things in a pulverised time in which one instant without duration follows on an instant which has ceased to endure. For it movement is a series of positions, change a series of qualities, becoming in general a series of states. It starts from immobility (as though immobility could be anything but an appearance, the special effect which one mobile produces on another mobile when their movements are regulated on one another), and by an ingenious arrangement of immobilities it recomposes an imitation of the movement and substitutes this for the movement itself; an operation practically convenient but theoretically absurd, giving birth to all the contradictions, to all the false problems with which metaphysics and criticism find themselves confronted.

As we can see where common sense begins to go astray, we have only to change its point of view in order to start it along the path of philosophic thought. As soon as the mind is brought back to real duration, its knowledge will at once begin to be in some degree philosophical; it will perceive the fluid continuity of a real time, indivisible in its flow; it will grasp a single and identical change ever in progress; there will no longer be inert

states, no longer dead things; there will be nothing but that mobility of which the stability of life is made. A vision of this kind, in which reality is seen to be continuous and indivisible, is on the road which leads to philosophic intuition.

For Kant was in error in thinking that it was necessary for us, in order to attain intuition, to leave the domain of the senses and of consciousness. If time and change were merely what Kant took them to be and what we ourselves ordinarily take them to be, there could be neither intuition nor metaphysics. But this time and change are a time and change which our senses and consciousness have reduced to dust in order to facilitate our action on things. Let us undo what they have done, let us bring back our perception to its origins, and we shall have a knowledge of a new kind without needing to have recourse to new faculties. We shall then cease to live in a universe which is only a shadow of its real self, which is cold as death, an artificiality to which we are artificially fashioned. Let us rather see ourselves as we are, in a thick (*épais*) and, what is more, elastic present, which we can dilate indefinitely backwards by pushing further and further away the screen which masks us from ourselves; let us accustom ourselves to see all things *sub specie durationis*. The satisfactions which art brings to a few, philosophy, thus understood, will extend to all. It will breathe new life into the phantoms which surround us and make us ourselves live anew. It will thus become the

complement of science in practical life as well as in speculation. With its applications directed towards the amenities of existence, science promises us well-being, or at most pleasure. Philosophy might give us joy.

PSYCHICAL RESEARCH

On May 28, 1913, Bergson delivered an address as President of the Society for Psychical Research. The full address will be found in the *Proceedings* of the Society.

Bergson began by saying that he had done nothing to deserve the honour conferred upon him, for in matters of psychical research he was a layman, but he had followed their proceedings with interest for thirty years, and the fact must have found its way from Paris to London through that mysterious activity which we have agreed to call telepathy. He had always admired their patience and courage in face of the coldness with which their investigations were welcomed by a large section of the scientific world. It is however more important to affirm than to refute. If telepathy is real, a telepathic fact must be subject to laws, as are all the facts of nature; if we knew its conditions, we ought to be able to reproduce it, or at least a part of it, experimentally. It was possible, in his opinion, that if telepathy was a reality, it was taking place constantly with every one, but too feebly to be noticed, or neutralised by certain obstacles.

The reason why scientists looked askance at their work was because the ideal of science was universal measurement, even in those cases where measurement was not immediately possible and where science had to be content with description. But the phenomena of thought and of the mind generally were not measurable, and for that reason science tended to substitute cerebral facts for these phenomena themselves. The theory of the exact equivalence of the cerebral and the mental had become so familiar to us that we spoke almost indifferently of the mind or of the brain. It was this theory which led science to condemn a priori the facts with which psychical research was concerned.

For his part he denied that the theory of psycho-physiological parallelism was proved or even suggested by the facts. Twenty years ago it was a scientific dogma that the brain was a storehouse of memories. He had discussed this position in one of his books and had endeavoured to show, after a minute examination of the facts of aphasia, that the rôle of the brain was to recall, to bring back the remembrance of an action, to prolong the remembrance in movements. His analysis had been confirmed recently by considerations of an anatomical nature, as could be seen in the works of Dr. Pierre Marie. What takes place in the brain corresponds to a small part only of the life of the mind. The brain is the mechanism through which the mind gets into relation with circumstances. If

it is deranged this communication is naturally affected. All our past is conserved, but not in the brain; and the rôle of the brain is to mask the useless part of our past and so to give special prominence to those recollections which are useful for the present or immediate future. The exclusion of useless recollections does not appear to be absolute, and it is with this vague fringe outside the distinct that psychical research would deal. Human personalities are rendered radically distinct by their bodies, for distinction implies space. But if the mind is partially independent of the brain, if the mind overflows the brain, this distinction or separation may not be so radical as it appears to be. There may be a psychical process analogous to endosmosis; the mechanisms which separate consciousnesses may at times work badly, and here again is a field open to psychical research.

If modern science had been led to turn its attention to the problems of mind instead of to the problems of matter, psychical research might have attained undreamed-of triumphs. The world of the physical might then have been the world of mystery—an idle speculation, no doubt; and we may be content that things have happened as they have, for it was neither desirable nor possible that it should be otherwise. Science was bound to use the mathematical method which lay ready to its hand, and we cannot but admire the rigour and precision which that method entailed.

What we have to do is to banish the bad metaphysic which has been wrongly engrafted upon these excellent scientific habits, and we may then find the science of mind attaining results beyond all our hopes.

CONCLUSION

We have now obtained a view, incomplete, it is true, condensed and perhaps on that account not always intelligible, marred possibly by misunderstandings, of Bergson's philosophy in the order of its development.[1] It remains to take a backward glance and to note briefly the impressions this philosophy has left—impressions for which Bergson must not be held responsible, since they may be other than those he intended to convey.

God is conceived as pure creative activity; not as a fountain, but as a flowing; not as a centre from which things emanate, but as a continuity of emanation. He is unceasing life, action, freedom; the concretion of all durations, the universal willing. Bergson's conception of God is, as all such conceptions must be, anthropomorphic. He takes the interpenetrating flow or duration of our conscious life, raises it to its highest power, and pictures it as God, the basis, or rather the continuity, of that universal interaction which is reality itself.

Spirit may be regarded as an emanation from God. It is supra-consciousness; it is what our own con-

[1] To say, as Mr. Wildon Carr does, that Bergson's thought has not developed during the last twenty years or more is, surely, to deny the efficacy and reality of time.

sciousness would be, if the latter were not wedded to a body already made. We see it in our own perception, for memory is spirit; in our consciousness, viewed as pure time existence; in our life, as furnishing the original impulse or impetus; in evolution, as the binding force which gives continuity; in all real movement and transformation. Spirit is "a prolonging of the past into the present, a progress, a true evolution." It is essentially duration, that which endures, connects things together, makes them *become*, creates new forms.

Reality, or the real, is that which really exists as opposed to the appearance we have of it. It is incessant change, interaction, movement. It emanates from God as pure spirit which becomes, as it were, degraded into matter by the inversion of its own movement. Reality is everywhere informed by spirit, and spirit may be termed its supporting and connecting principle. Reality ranges between two ideal limits, that of pure time existence, the existence of God and spirit, and that of space, the limit at the other end, towards which material existence tends but which it never quite reaches. Bergson's conception of reality as a movement which inverts or interrupts itself is taken from our own consciousness, the flow of which seems able to go in either of two ways; it may exclude all materiality and intellectuality and by an effort of will get back to pure duration, that is spiritual or time existence; or it may break up the flow of its states and set them out in an imaginary or symbolical space. The two

movements in reality are like these two movements in consciousness. His view of reality as movement and nothing but movement, of tension which detends in order to extend, is, again, akin to that which modern science has formed of the real nature of the atom. The atom is no longer held to be irreducible; it is a mere view of the mind, a convenient symbol, resolved by scientific theory into changes of tension or energy, a centre of electrical discharges. Remove these and the atom disappears. There is nothing, therefore, very strange in Bergson's conception of reality as a system of interacting movements, a flux, a continuous flow.

It is true that we do not usually perceive this flow except in our own consciousness. Light and sound, for instance, are nothing but movements of different rapidities which our senses collect and condense. A piece of bent wire, rapidly rotated, may appear to be a solid figure. We are familiar with such toys, and we know that the solidity of the effect is due to the merging of one sensation into another. It is in some such way as this that our perception works. It does not give us a view of reality as it is, but as it may be useful for our purposes, so that we may act on it and live. Solids, liquids and gases do not exist at all as such; we create them out of movements. Permanency, stability, solid matter are illusions of our own contriving. There is relative stability, as when two trains are moving at the same speed in the same direction, and each, relatively to the other, seems to be at rest.

Even the space in which objects appear to be has no real existence. There is no empty space; the idea which we form of it is a figment of our imagination, a device to aid our action. Science lays out matter in space, as we might lay out the diagram of a steam-engine on a drawing board, for the purpose of facilitating calculations. Matter tends towards space as an ideal limit; science assumes that it has reached that limit, and its conclusions cannot be more than abstract or provisional.

Although reality is not what it appears to be, we are yet in touch with it. The whole universe is a system of movements; our bodies, too, are systems of movements, and are continually receiving movements from, and sending movements to, the rest of the universe. This pure or unconscious perception is a contact with reality itself. We know it because we are it. After the movements reach the brain a time element enters, the element of spirit, of memory, of consciousness, of choice. The brain itself does not choose, but it enables spirit to choose, and the greater the development of the brain the wider the liberty of our choice. There is a correspondence between brain movements and psychical states, but only in so far as these states issue in action. The psychical element overflows the brain but works through it. The brain does not store memories. We trail our past behind us; it is all there in the shape of memories ready to enter into action, although they cannot issue in action if the motor apparatus is impaired.

If everything is movement, and if life, a spiritual force, has only to detend, or give up its tension, to become extension or matter, there would seem to be merely a difference of degree between matter and spirit. There is spirit in matter, for matter acts its past although it does not remember the past or create the future. Matter perceives, but unconsciously, and can only repeat the past. Matter and spirit are here equally balanced and all actions are automatic; there can be no initiative until spirit outbalances matter. The action of matter is unconscious perception, like the perception effected by our own body as long as the brain is not sufficiently developed to admit of indetermination. Those critics who deny that Bergson is right in saying that instinctive action is acted, or unconscious, knowledge seem to place instinctive action on a par with the action of inert matter. Both, as Bergson says, are unconscious, but the action of a stone differs from that of a bee, in that in the first case consciousness is absent, while in the second case consciousness is neutralised but may be set free.

When we say that there is a spiritual force behind evolution, we mean that there is something in the universe which science cannot weigh, measure or calculate, and which it will never succeed in calculating. If nature is one, its unity rests on a spiritual element. Kant and most scientific writers assume that there is only one science of nature,[1] and that what lies outside it must be noumenal or unknow-

[1] See below, p. 259 ff., and *Bergson and Science*, p. 283.

able. Bergson maintains that there is more than one science of nature, and that the scientific methods which are successful in connexion with inert matter require radical qualification in the domain of biology and psychology. In the first case the spiritual element may be safely neglected; in the second it is all-important. We can attain to knowledge in both cases, but the manner of its apprehension will be different, and so too will be the method of verification, or our test of its truth.

Life is conceived by Bergson as a spiritual force, whose object is to insert the utmost amount of indetermination into matter. In order to do this it organises matter, and the further it can carry the organisation the greater the amount of indetermination it will introduce. But the vital impulse is a limited force, and cannot do all that it might wish. Its effort has become divided up, and has led in many cases to blind alleys. Evolution is thus a conflict between the freedom of spirit and the necessity of matter; only in one instance has freedom scored a decisive triumph, that is in man, who is, at any rate so far, the crowning achievement of the evolutionary progress. Man must not be regarded teleologically as an end, for we cannot say that the evolution of man, as he is, was intended when the process began, and the accidents incidental to the course of evolution might have made him very different, even morally, from what he is. At the same time he is an end, in that he is the main terminal point which evolution has reached and a

distinct advance upon, and different in kind from, its other products. Nor can we say that evolution is complete; we can, with some certainty, affirm that it is not. Its further progress seems likely to be in the direction of a being whose intuition will be equal to his intelligence. If progress is possible, man cannot be the end which creative intelligence has had in view; nor can we properly attribute intelligence to God, for intelligence is a product of the movement which has created matter. God is pure time existence, and we cannot know him with our intellect, although we can say, consistently with Bergson's philosophy, that in him we live and move and have our being.

Upon this question of man as an "end" of evolution, Bergson has an interesting thought which, however, he does not develop to any definite conclusion. "It is as if a vague and formless being, whom we may call, as we will, *man* or *superman*, had sought to realise himself, and had succeeded only by abandoning a part of himself on the way."[1] What has been lost is seen in the positive gains of the animal and vegetable worlds. Consciousness has unloaded its incumbrances on our "useful travelling companions" the animals, and so has been able to rise in man to heights from which an unlimited horizon opens out. It has not only abandoned cumbersome baggage but has had to give up valuable goods, and consequently we are not the complete and perfect humanity we might

[1] *Creative Evolution*, p. 281.

have been, if nothing had been lost on the way. Freedom has fought with necessity; freedom has won the battle, but has not emerged unscathed. Bergson seems here to return to the old Greek idea of gods over against a hidden Necessity.

What raises man above the animals, what raises him almost infinitely and puts him in a different class, is not his intellect but his freedom, but, as already suggested,[1] it is difficult to find in Bergson's conception of freedom a basis for moral action. His favourite analogy is that of a ripening fruit, and this analogy, so far as it goes, seems to point to actions which, although unforeseeable, are rather new growths than strictly moral impulses. Bergson has not discussed ethics, although ethics and freedom are nearly allied topics, and it is not clear whether he regards morals as a product of evolution or as innate in the original impetus which attempts, not always successfully, to control the meanderings of the evolutionary movement. The moral sense is certainly evolving and progressive, but whence comes its germ? If we hold a theory of evolution, we cannot believe in the doctrines of the Fall or of original sin, for evolution is a progress from lower to higher forms of life. The moral sense may exist in animals, but it reaches its full development only in man as a social being. May we then regard it as innate in the soul, which Bergson seems to take, like Aristotle, as the sum of the vital activities? Our souls, Bergson tells us, are little rills from the

[1] See above, p. 133 ff.

great river of life or consciousness; they existed, in a way, before they became "ours", and, presumably, will continue to exist after we have done with them, after they have ceased to be "ours." If we are to realise our freedom, we are told to replace our will in the impulsion which it prolongs; but when we have done so, "our" will seems to have vanished, and with it our moral responsibility. So, too, will our personality and individuality have disappeared, for they depend, at any rate in part, on the body.

We ourselves are a compromise between the spiritual movement and the material movement. Supra-consciousness has organised us by insinuating itself into matter, the object of this organisation being to triumph over necessity. Consciousness is mobility itself, but our own consciousness is compelled to drag the body and to share its vicissitudes. The union gives rise to individuality, and our feeling of self, or personality, comes from the fact that our consciousness of the movements of our own body differs from our consciousness of the movements of other bodies. We are conscious of the body both from within and from without. It becomes our centre of the world. Like the rest of matter, the body is a system of movements with a duration of their own, but this duration differs so greatly from that of spirit that it may almost be neglected. Bergson speaks of the body as an ever advancing boundary between the past and the future; it constitutes the ever-recurring present of our con-

scious life; its existence approximates to that of the *res extensa* of Descartes, which is renewed at every instant; the body is a pointed end, which our past is continually driving forward into our future; when replaced in the flux of time, it is "always situated at the very point where my past expires in a deed." Abolish the body or brain, and the past cannot act or be realised. My present consists in the consciousness that I have of my body; in the actual state of my body the actuality of my present lies; the body enables the idea to get into touch with present reality, and so the body fixes the mind, gives it ballast and poise; it conditions our attention to life, and on its efficiency, therefore, depends the normal work of the mind.

But our consciousness is not only the idea of the body; it includes memory as well. The body is the material element in our psychical life, and from the body, we may suppose, comes that idea of space which enables us to cut up the continuous flow of things in order that we may act upon them. Memory is the spiritual element, and gives to consciousness its essential characteristic of being able to hold together past and present in a single act of thought. The past has not ceased to exist although it has ceased to act; if we wish to make it act, we must get at it from the present. There is more than a difference of degree between past and present; the one is powerless, the other a summons to action. There is no present in the form of a mathematical instant; such a present is a mere ideal, approach-

able but never reached. The real concrete present always has duration, always has a foot in the past and another in the future, one in sensation and another in action or movement. My present has, then, both sensation and movement, is essentially sensori-motor, and consists in the consciousness that I have of my body. Pure memory, on the contrary, has nothing to do with the body. Before it can beget sensations it must materialise, cease to be memory, become present and something actually lived. My present is impending action; my past must become image or nascent sensation before it can take part in action, but it has then ceased to be pure memory. Consequently, there is a profound difference between memory and memory-image, for the image is a present state. Bergson regards consciousness as the characteristic note of the present, of the actually lived, of the active; hence memories exist outside of consciousness; they are unconscious, because ineffective, psychical states. As objects do not cease to exist when we cease to perceive them, so memories do not cease to exist when we cease to remember them. We carry with us, in an epitomised form, all our past; we may not perceive it but we are always using it, although we call up into consciousness only what is useful for present action. We retain the past, but not in the brain. It has not ceased to exist although it has ceased to be useful, and the whole difficulty of this conception of the past lies in a false conception of the present, which never *is* but is always being made.

The pure present is "the invisible progress of the past gnawing into the future." Thus there are two memories, true memory and habit memory; the latter acting our past experience but not calling up its image, and always moving in an ever-renewed present; the former moving in the past and ranging alongside of each other all our states in the order in which they occur.

Bergson's analysis of memory is likely long to remain a source of inspiration for students of psychology. It may be classed with his identification of time with the spiritual force behind evolution, with his conception of becoming and with his rehabilitation of metaphysics as forming the most striking products of his thought, products not necessarily of equal value or permanence. Some reference has already been made to Bergson's doctrine of time,[1] but whether duration be regarded as identical with spirit or not, it is at any rate spirit's leading feature, for by prolonging the past into the present it makes possible creation, evolution, life, movement, in a word universal becoming.

Bergson's theory of knowledge, the relation of intellect to things, of science to reality, rests on two main considerations which appear to be incontestable; firstly, that life overflows the intellect, that the intellect is only one side of our activity; and, secondly, that we act before we begin to speculate. In order to live we must be able to act upon matter. If our intellect is to assist us in this action upon

[1] See above, p. 127 ff.

matter, it must view matter not as it really is—a continuous flux, but as a number of states or rests. Hence the intellectual movement and the material movement are seen to be in close relation with one another. The weapon which the intellect uses in its dealings with matter is the idea of space; the intellect can deal with nothing which it cannot split into parts and lay out in an ideal space. Matter tends towards space but is not altogether extended in it. Intellect, in order to deal with matter, assumes that its extension in space is complete. Science, the work of intellect, will be approximately true so far as regards inert matter, for that can be spread out in space without being seriously affected thereby; but life and mind are continuous and interpenetrating; they cannot be split into parts or set out in space without serious falsification.

In this connexion it may be useful to supplement what has already been said about the relation of intellectuality with materiality.[1] The most striking fact about science (which is the work of intellect, the results at which intellect has arrived) is that the further it pushes its analysis into any object, the more complex is the order it will find there. Scientists often claim that this complexity and this order are a positive reality. Bergson maintains that they must be viewed as an interruption or inversion of what is really positive, and that what is really positive must be defined in psychological or spiritual terms. He agrees that the order must *appear* to

[1] See above, p. 220.

the intellect as a positive reality, "since reality and intellectuality are turned in the same direction," since, in other words, our intellect has been developed in mutual adaptation with matter. If a poet is reading his verses to me, I can enter into his thought, grasp his feelings, make his inspiration mine. As soon as I relax my attention, let go the tension of my will, cease, as we say, to listen, the sense of what is being read disappears and I am conscious of a number of disconnected sounds. For this change to take place, I have not had to do anything positive; I have simply let my attention wander. The further this negative direction of relaxation is pursued, the more complexity and extension I shall create in what is being read to me. In place of the inspiration of the verses as a whole, I shall have an admirably ordered collection of words and letters. This illustration of Bergson's may help us to understand how the same suppression of positive reality, the same inversion of an original movement, can create at once extension in space and the order which mathematics finds there. We need not press the illustration too far, but it shows how "the infinite complexity of the parts and their perfect co-ordination among themselves are created at one and the same time by an inversion which is, at bottom, an interruption, that is to say, a diminution of positive reality."

There is immanent in our idea of space a latent geometry which is the mainspring of our intellect and the cause of its working. If we consider the

faculty of deduction, we see that the movement by which I trace a figure in space engenders its properties: I see at once in space the relation of the premisses to the conclusion. I know this indeed before I have learnt geometry. There is then, prior to the science of geometry, a natural geometry whose clearness and evidence surpass the clearness and evidence of other deductions. These other deductions bear on qualities and not on pure magnitudes, but they are based on the model of the first, and borrow their force from the fact that we see magnitude vaguely showing through behind quality. Questions of situation and magnitude are the first to present themselves to our activity: savages, for instance, often excel us in judging distances, directions and the like. If an animal does not deduce or form concepts, neither does it form the idea of a homogeneous space. This space when presented to the mind brings with it a virtual geometry which will, of itself, degrade itself into logic. Philosophers do not like this view because logic seems to them to be a positive spiritual effort. But if we understand by spirituality a progress to ever new creations, we may call the opposite movement, in which relations are necessary and premisses contain their conclusions in advance, materiality. This latter movement is not an effort but a letting go; and logic and geometry are seen to arise along the course of the movement of which pure spatial intuition is the goal. The feebleness of deduction in the moral sciences is very striking; it is on the

other hand all powerful in those which deal with things external to us, once their principle has been observed. Why should this be so?—because, Bergson maintains, deduction is an operation governed by the properties of matter, given in fact with the space which underlies matter. Deduction, then, does not work unless there be spatial intuition behind it.

We may say the same of induction, which, indeed, in its simplest form can be used without thinking at all. Intellectual induction rests on the belief that there are causes and effects, and that the same effects follow the same causes. This double belief implies that reality can be decomposed into isolated groups; it also implies that the sequence is completed automatically. If I am reasoning on pure space determinations my certitude is assured. May I not conclude that the nearer my data approach such determinations, the greater will be my certitude? For a series of events of to-day to be exactly like a series of events of yesterday, that is, to be superimposable like one triangle on another, time must have halted and everything become simultaneous; but that happens only in geometry. Induction implies, then, that time does not count and that qualities can be superimposed on each other like magnitudes. It extends to qualities all that can be applied to magnitudes. "Our inductions are certain, to our eyes, in the exact degree in which we make the qualitative differences melt into the homogeneity of the space which subtends them,

so that geometry is the ideal limit of our inductions as well as of our deductions."

The movement at the end of which is spatiality creates also the "order" which our induction, aided by deduction, finds in things. This order appears admirable to our intellect because the latter has been cut out of mind by a process of the same kind. Physical laws express a negative tendency, an interruption of the creative act. None of them, taken separately, has objective reality, and yet there is an objective order immanent in matter, but, as it is not pure space, mathematics will never apply to it completely. There will always be something artificial in our scientific knowledge, since our standards of measurement are conventional and measuring is a wholly human operation. Yet physics can measure very successfully, and its success must be due to the fact that intellectuality and spatiality are of the same nature and have been produced in the same way. If our scientific laws were immanent in matter, the success of our science would have in it something of the miraculous. On the other hand its success would be incomprehensible, if matter did not already possess everything necessary to adapt itself to our formulæ. Our science is contingent and yet successful. It might have been altogether different and yet have succeeded. There is no definite system of mathematical laws at the base of nature, and yet matter, because it is weighted with geometry, will always fall back into some one of our mathematical formulæ.

Bergson's conclusion that the mathematical order

is nothing positive but an interruption of the inverse order would, perhaps, meet with the assertion that there might be no order at all, and he proceeds to the discussion of the idea of disorder, to which reference has already been made.[1] The confusion of the two orders arises naturally because we cannot view the evolution of life as a whole, and because we meet in our daily experience with certain manifestations of life which *almost* repeat themselves. The vital order, as presented to us piecemeal in experience, resembles the physical order; both enable our mind to generalise. And yet they are essentially different, the one creative, the other, at the limit, geometrical necessity. When we consider the genesis of a living being, our first impulse, in order to explain the difference between the two, is to postulate a "vital principle," a sort of foreman who watches over the work and brings the efforts of the workers to a coherent end, but there are really neither workers nor foreman. Our mind is led to interpret an indivisible operation as a number of causes and elements. Hence the idea of a general order of nature, everywhere the same, hovering over life and over matter alike; hence the confusion between the *laws* of inert matter and the *genera* of life. The generality of laws and that of genera are designated by the same word, and the geometrical order and the vital order are accordingly confused together. This confusion lies at the bottom of most of the difficulties raised by the problem of knowledge.

[1] See above, p. 221.

Modern thought aims at explaining the generality of genera by that of laws. The idea of generality is an equivocal one, since it unites incompatible objects and elements, two kinds of order whose likeness is merely external. The ancients reduced laws to genera and were therefore confined to a more or less clumsy interpretation of the physical in terms of the vital. The moderns, while equally maintaining that science is one, invert the relation and endeavour to reduce genera to laws, and their science becomes in consequence altogether relative. A law is a relation between objects and facts cut out of nature. The choice of these objects and facts has something of the contingent and the conventional, but admitting that the choice is hinted at, if not prescribed, by experience, the law none the less remains a relation, that is, a comparison, and has objective reality only for an intelligence that represents to itself several terms at the same time. Therefore an experience made of laws, that is, of terms related to other terms, is an experience made of comparisons; it has already had to pass through an atmosphere of intellectuality. Hence a science one and integral, composed of laws, was entirely relative to the human understanding. The fact is clear and Kant only brought it to light. But this conception of science is the result of an arbitrary confusion between the generality of laws and that of genera. If we distinguish the two, the alleged relativism of science disappears, and we get into touch with reality on both sides. Life as a whole is an evolution, that is, an unceasing trans-

formation, but it can progress only by means of living beings which are almost alike and nearly repeat one another. These repetitions make generalisation possible. Science seizes on the routine which is accidental in the vital order and assimilates it to the repetition which is essential in the physical order. As soon as we reach a clear distinction between the physical or automatic order and the vital or willed order, the difficulties raised by the idea of disorder disappear. This idea represents only the absence of that one of the two orders which we expected to find.

To sum up a rather long discussion, Bergson does not deny that the intimate structure of our thought corresponds, piece by piece, to the very skeleton of things, but he claims that this correspondence is extended to the vital order by a false analogy, and he asks, further, why it should exist even between our thought and material things, or in other words how is natural science possible? Bergson answers the question by telling us that if we trace the genesis of intellect and matter we shall find that they have both proceeded from the same movement in mutual adaptation; the same inversion of the same movement has created them both. We have to do with two terms, the intellect and the facts observed. Before we can represent relations between phenomena there must first be phenomena, that is, distinct facts cut out in the continuity of becoming. How do we get at these facts? By cutting them out with our intellect. But this is to assume the intellect as it is to-day, and not (as Spencer wrongly claimed)

to explain its evolution. If our intellect were different, the facts would be different. We can hardly suppose that they are the same for animals or insects as they are for us. Spencer was right in defining the intellect by the correspondence between mind and matter, right in regarding it as the end of an evolution, wrong when he thought that he had traced this evolution. We may agree that the laws of thought are only the integration of relations between facts. This however may be interpreted in two ways, (1) that the relations between facts have generated the laws of thought, and (2) that the form of thought has determined the shape of the facts perceived and consequently their relations among themselves. The second takes the intellect as given; evolution is left out of account. Spencer claimed to write a philosophy of evolution, but by positing the facts he posited the intellect. Both interpretations amount to the same thing and both leave evolution out of account. What we have to discover is by what *modus vivendi*, gradually obtained, the intellect has adopted its plan of structure and matter its mode of subdivision. This structure and this subdivision are mutually complementary and must have progressed one with the other. The progression or evolution cannot be reached by any composition of parts. We must make a clean sweep of imaginative symbols and we shall see, within evolution, the progressive determination of materiality and intellectuality by the gradual consolidation of the one and of the other.

Our intellect, as Bergson never wearies in telling us, is turned towards action. We see in order to act; if we could see in order to see, we should find the Absolute not only near us, but, in a measure, in us. In order to act we have to set up ends; these ends are points of rest; reality becomes pictured as a series of rests and we lose sight of its perpetual flow. In order that we may pass from act to act, matter must pass, or appear to pass, from state to state. We see it as states because our sensory organs and motor organs work together. But what we see as qualities, *i.e.* as colours, sounds, &c., are really enormous numbers of movements or vibrations; hence every quality is change but not something which changes. The apparent permanence of a quality consists in a repetition of movements, which our perception seizes and condenses into quality. The power of condensation is different in different living beings and even in different men. An animal which vibrates almost in unison with the oscillations of the ether will feel hardly more than movements; the being who can condense millions of oscillations into a simple perception will perceive qualities. The qualities of matter are so many stable views which we take of its instability.

Any given body is made up of qualities which are themselves movements, and the body, therefore, changes at every moment, for the qualities are movements and the body also changes its qualities. When a stimulus is continuously increased, we know that

our sensation changes in jumps; in the same way we cannot see the change in evolution until it is considerable enough to overcome the "fortunate inertia" of our perception; we then say that the body has changed its form. But the body is changing all the time; there is no form, for form is merely a stable view of a reality which is movement. When bodies act on one another, we are compelled to recognise this action as movement, but we shut our eyes to its mobility as far as we can, and ask where the movement is going or what is to be its result, ignoring the change and concentrating our attention on the state; and so we succeed again in taking stable views of instability. In this way we arrive at a number of different states beneath which we imagine a hidden flow or becoming always and everywhere the same, and in consequence we substitute general change for specific change. The method, born of our action, is admirably suited to action but is fatal to speculation, for it substitutes a number of snapshots for the moving continuity of the real. If, on the other hand, we install ourselves in becoming, we see in duration the very life of things, the fundamental reality. Each successive state, each quality, each form will be seen as a mere cut made by thought in the universal becoming. There are no states which change, no bodies which move, no forms which evolve; there are only different movements, an infinite multiplicity of becomings. Reality is transition.

But our thought, our language and our signs,

precise and efficient though they may be, tie us down to this false conception of reality as a series of states connected by a colourless movement, the latter being assumed or taken as understood. Modern science, like the ancient, is compelled to use the cinema-method. It cannot do otherwise for it handles *signs*, which it substitutes for the objects themselves; and these signs denote only a fixed aspect of the reality under an arrested form. They substitute for the thinking of movement a practical and easily handled but artificial reconstruction. Again, the essential object of science, however disinterested it may appear to be, is always practical utility. It may extend, but it does not transcend, the method of our ordinary thought. It must always be ready to adapt its behaviour to the general form of practice, and it could not do this if its rhythm differed absolutely from that of action. To act is to re-adapt oneself. "To know, that is to say, to foresee in order to act, is then to go from situation to situation, from arrangement to rearrangement." So science is always isolating moments and is not concerned with what happens in the intervals between them. Modern physics differs from the ancient chiefly in the indefinite breaking up of time. The difference is profound, even radical, though reached only through seeking a higher precision. Instead of a qualitative description, modern science deals with quantitative variations either of the phenomenon itself or of its elements. It aims at measuring magnitudes, and experiments

with this view. We see Kepler seeking laws, constant relations between variable magnitudes, and the discoveries of Kepler and Galileo furnished modern science with its model. Modern science, then, is the daughter of astronomy. The question for Kepler was, knowing the respective positions of the planets at a given moment, how to calculate their positions at any other moment. The same question, henceforth, was put, in principle, for every material system.

The ideal of science, based on the work of Galileo and Kepler, is a universal mathematic, the measurement of everything, and to effect this measurement it reduces succession, the continuity of interpenetration in time, to an instantaneous juxtaposition in space. If the one were really reducible to the other, mechanism would be justified, but, as we have seen, science omits from movement its essential factor and substitutes, as Bergson says, time-length for time-invention. On the flux of duration itself science can lay no hold, and its inability suggests that there may be, parallel with physical science, a second kind of knowledge which would retain what physics has allowed to escape. This knowledge would require the method of science to be set aside. It would by an effort of sympathy place us within becoming itself; we should try to follow no longer the moments of time, but the flow of time and the flux of the real. In addition to the symbolised, practical, useful, human knowledge which science gives us, we should have a knowledge,

which, while it might not extend our empire over nature, would place us in touch with nature or reality itself. The intellect would be completed by the development of a complementary faculty, which would give us a knowledge not only of matter but of duration, the life of the real. To intellect there would be added intuition.

The object of Kant's criticism, as Bergson points out, was to show what our mind and nature must be *if* the claims of science are justified; he did not criticise those claims themselves, but took for granted that science is one, that experience is one and that intellect covers its whole ground. He expresses this by saying that all our intuitions are sensuous, that is, infra-intellectual. But if science becomes less and less objective and more and more symbolical as it passes from physics to life and from life to mind, then there must be an intuition of the vital and the psychical, for we cannot symbolise a thing without somehow perceiving it. This supra-intellectual intuition would give a knowledge which is no longer external and phenomenal. It would also suggest a continuity between itself and sensuous intuition, and the latter in its turn would be promoted and would be seen to introduce us into the absolute. Sensuous intuition would cease to be relative, for its relativity was a deduction from the artificial character of the scientific knowledge of the vital and the spiritual. But Kant admitted no mean between the non-temporal and a physical existence spread out in space or in spatialised time. Hence for

him all intuition was sensuous and metaphysics impossible.

Bergson appeals to experience, not to a non-temporal experience which we cannot have, but to an experience freed from the conceptual moulds which have been formed by our intellect in the interests of action. This experience would go beyond the spatialised time in which we seem to see continual rearrangements of the parts and would seek "that concrete duration in which a radical recasting of the whole is always going on." In this direction the philosophy of the nineteenth century did not go; it sought to escape Kant's difficulties by an appeal to a non-temporal intuition. Nature was regarded as a manifestation of the absolute. Such a denial of new creations and real duration is a return to Spinozism. These philosophers, while opposed to mechanism, accepted from it the doctrine that there is only one science of nature and also accepted from it the articulations which mechanism had made in nature. Although evolution was talked of, it was implicitly denied. Magnificent as the constructions were, the attempt to deduce the actual world by means of pure thought was bound to end in failure.[1]

[1] Professor Ward stigmatises Kant's metaphysical deduction of the categories as "perhaps the most disastrous instance of mistaken ingenuity to be found in the whole history of philosophy; for to that in very large measure may be traced the daring but hopeless enterprises of his idealist successors, Fichte, Schelling and Hegel. Nobody ever has, nobody ever will, derive the categories of substance, cause, end or any other concept concerning reality, from any source altogether independent of experience." *The Realm of Ends*, p. 228.

We must, then, appeal to our experience as it is before it is broken up and spatialised by reflective intelligence, and it is upon the possibility of this supra-intellectual intuition that the possibility of metaphysics will rest.

It is well known that Kant was preoccupied with the science of his day, with the physical or exact sciences which had achieved such marvellous progress and whose ideal was a universal mathematic; whose conclusions were based on repetition and were verified or verifiable, at least ideally, by prediction. What lay beyond them was not scientifically knowable, and was, for Kant, not knowledge at all. It may be contended that Kant's limitation of knowledge was unjustifiable, and it is in any case difficult to draw a definite line between what we know and what we opine. Bergson, however, agrees with Kant that all intellectual knowledge must be scientific knowledge; he differs from Kant in saying that there is a knowledge which is not intellectual, and which will therefore not be amenable to the tests which apply to knowledge formulated in the concepts of exact science. Since Kant's day the sciences of biology and psychology have made immense strides, and their progress has propounded a number of new problems for both the scientist and the philosopher. We can study these sciences in two ways. We can, for instance, analyse a living being into chemical components governed by physical laws; we can lay out our minds upon the dissecting table and so obtain a view of the separate states or

faculties which appear to compose them. We shall have learnt much in the process, all in fact that exact science can teach us, and yet we shall miss, and realise that we have missed, their essential element. To regain this element we must proceed by the other method. We must use our intuition instead of our intellect, and by a sympathetic effort live the life of the living being, feel the flow of our conscious states, and so attain a knowledge truer than any truth which the intellect or exact science can give us, a knowledge which will be an extension of science and will transcend it, and so will be more truly scientific than science itself. For the living being will then be studied as a whole, as an individual, as a system closed off by nature herself; we shall study its articulations as they really are, and not as science represents them. The knowledge obtained by the second method will not be verifiable in the scientific way, for there will be no repetition and no possibility of prediction. We shall be dealing with a history, every moment of which is a new creation.

"Without Kant's postulate of 'things-in-themselves,' full value appears to be given to scientific knowledge on the one hand and a sphere reserved for metaphysics on the other — a consummation devoutly to be wished!" So writes Dr. Stewart,[1] with open scepticism, and he maintains that Bergson's treatment of the intellect can be justified only by a clear proof that intuition can supply its place. The reader must refer for himself to Dr. Stewart's inte-

[1] *Critical Exposition of Bergson's Philosophy*, p. 209.

resting discussion, which leads to the conclusion that such a proof is lacking. In reply to Bergson's contention that his method resolves antinomies, Dr. Stewart urges that these difficulties are difficulties of reason; they have arisen within reason itself, and no solution outside reason can be satisfactory; if they cannot be solved by reason, we may recognise its limitations and hold that to a perfect intellect everything would be made plain. He does not appear to deny that Bergson's method *does* solve antinomies, but to say that intellectual difficulties must not be solved by conjuring up a *deus ex machina* in the form of intuition. Bergson would agree that these problems have arisen within reason, but he would say that they are not problems of reason but problems of life, a distinction which explains the inability of reason to deal with them, for reason or intelligence is itself a product of evolution or life, and as such cannot explain a whole of which it is a part. The problems which beset philosophy twenty-five centuries ago beset us now, even more insistently; the progress of science has but intensified them, and, so far from being able to say that perfect intelligence would give perfect knowledge, we can rather affirm the contrary. The laying of antinomies might not of itself prove intuition, but it would be a strong presumption in its favour. Any suggestion that intuition is a *deus ex machina* is unwarranted, for we can study it in evolution in the allied form of instinct; we can study it in history and in ourselves. We can show that science is incapable of dealing

with movement, progress or life; if we were confined to science or the intellect we should know nothing about them, but we do know something about them and this knowledge must come from intuition.

Dr. Stewart, again, lays great emphasis on the opposition which Bergson notes between intuition and intelligence. No doubt a certain opposition exists, for they are contrasted or divergent tendencies; but if we remember Bergson's fondness for incisive contrast, we shall find him regarding the two faculties as less opposed than complementary. The idea of complementarity almost excludes that of opposition. Intelligence is figured as a nucleus condensed from a wider whole; on other lines of evolution the same whole has been condensed into instinct. Neither is found without the other, and that part of the whole which has not been condensed will supply the complementary faculty. Each may be said to be implicit in the whole. Intuition is disinterested instinct and has risen above instinct by the push given by intelligence. Both methods, it may be said, are always used at the same time except when science effects an artificial isolation, when it reduces the living to the lifeless or treats an organised and individual whole as a collection of inorganic elements. Even intellectualistic philosophies are vivified by intuition, at least in part. Intuition, however, is from its nature solipsistic, and before it can be communicated to other men it must be reduced to concepts which, useful and indispensable

servants as they are, are unable from their stable and spatialised character to represent it completely. Dialectic is necessary to test an intuition; it cannot prove it, for a system of thought may be logically coherent and yet far from true, as the history of philosophy shows us. But if dialectic, which is only "a relaxation of intuition," reduces the intuition to logical incoherency, we may conclude that the intuition is false. Dialectic, then, is only a negative test; the supreme test of the truth of an intuition lies in its apprehension.

It would be wrong to imagine that there is anything mysterious in the power of intuition. We, or some of us, are using it every day. Our ordinary thought is a blend of the intuitive and the intellectual, although we may attain to pure intuition as rarely as to absolute freedom; hence a rigid separation between intuition and intelligence must be in some degree artificial. No greater mistake could be made than to think that Bergson wishes to minimise the importance of intellect or of science; his object is rather to distinguish between two processes of our conscious life which are commonly confused. Intuition without intellect would be of little worth; intellect without intuition would be confined to synthesising or rearranging the past. Wherever we have new thought, there we have intuition. The simplest invention, the most ordinary discovery implies it. The use of movable types has, in a sense, revolutionised the world, and yet, as we look back, we wonder why printing was

not discovered before. Anyone can use the types, but it required a stroke of genius, an effort of intuition, to make the discovery. Steam spouted from kettles long before observation of the fact led to the invention of the steam engine, but it required intuition to connect the two. No doubt if Watt had failed to invent the steam engine, some one else would have done so. A discovery is generally "in the air" before a particular mind suggests it, the steam engine itself may be said to have been "in the air" for a couple of thousand years, but this merely proves that if intuition is to be useful, it must work with intelligence. It is the spark among the tinder, a spark which would be unavailing without the tinder. Genius is not the taking of pains, but the greater the pains the more effective the stroke of genius when it comes. Every work of art owes its worth, as a new or creative effort, to intuition. Every great scientific discovery issues from the same source. Intelligence supplies the concepts with which intuition must work; intuition supplies a new element, which in its turn is formed into concepts and added to that platform whence new intuitions may spring. Hero failed to discover the steam engine, and Democritus the atomic theory, because they lacked the platform. Bergson's philosophy would have been impossible but for the facts of evolution which scientists have provided.

Intellectual or scientific facts will yield a synthesis, which may be inspired or uninspired; in the first event, the synthesis is the work of intuition;

in the second, it will produce nothing new. Mr. A. D. Lindsay gives an illustration which I venture to quote. "History . . . is not a mere collocation of facts, for it is a synthesis of them—a synthesis for which there are no rules; its success depends on the individual insight of the historian, and on his intimate and long acquaintance with the facts to be synthesised. History (and in this respect philosophy is like it) is both science and art. It follows science in the wideness and comprehension of its scope and mastery of detail; it is like art in that it is the work of genius. The analogy of history will also help us to consider how we may know whether or not an intuition is true. Neither history nor philosophy admit of verification in the ordinary sense of the word, for verification implies repetition. The test of a great history is the extent to which it enables us to understand and have insight into the past; for the facts of history, although they could not have been predicted, are intelligible if we look back upon them rightly. The test of a great history is not only that it is correct in its details and facts, though that is essential, but that it makes us understand them. Philosophic intuitions must be faithful to the facts of science; whether they are so or not only science can tell us. It must also make us understand these facts, and there is no fact which will tell us that that is accomplished save the process itself." [1]

Metaphysics, then, as Bergson conceives it, will

[1] *The Philosophy of Bergson*, pp. 240, 241.

be always progressive but never complete. It will go forward hand in hand with science, basing itself on the intellect but deriving its inspiration from intuition. It cannot be the work of a single mind, though each may add something to it, and the value of the addition will depend not only on the intuition but on the familiarity with the facts which the intuition vivifies. Science will explain things as far as they can be measured and in their spatial aspect, the only aspect which science and the intellect can grasp; metaphysics is an extension of science, for it will explain things in their temporal aspect, as living beings and comparative wholes. Thus the two will push one another on indefinitely, and give us, at the limit, a knowledge complete and irrefragable, which will transcend the contradictions or antinomies born of a one-sided attention to the purely intellectual and the purely scientific.

NOTE.—BERGSON AND SCIENCE[1]

Bergson comes into contact with science in this way, that he seeks to supplement the intuitional, or ordinary philosophical, method of proof by an appeal to facts empirically observed in order to show that these facts do not justify the conclusions which men of science have drawn from them. There are three main points of contact of that kind in his writings. (1) In *Matter and Memory* he seeks to show from an empirical study of the facts of memory that it is not entirely explicable by the brain; in *Creative Evolution* he deals in the same way (2) with the relation of instinct to intelligence; and (3) he attacks the problem of evolution itself, and endeavours to prove that the observed and acknowledged facts of evolution do not support the hypotheses of the process of evolution currently held in the scientific world. If it should be thought presumptuous for a philosopher to attempt *tantas componere lites*, we must remember that science itself is at loggerheads; the

[1] This Note discusses in a less formal way and from a slightly different point of view questions already treated in the "Conclusion" and elsewhere. I have endeavoured to make the scientific position clear in order that the reader may be able to compare it with Bergson's. He must however always bear in mind that Bergson's criticism is not so much of science itself as of a metaphysic which claims to base itself upon scientific laws.

same facts are differently interpreted. Not only, for instance, do the neo-Darwinians and neo-Lamarckians offer a different interpretation, but most scientific men hold their interpretations to be mutually exclusive—you cannot at one and the same time be a Darwinian and a Lamarckian. Bergson does not go as far as this; he maintains on the contrary that, both these hypotheses of biological evolution being based on observed facts, both must have some element of truth, while neither represents the whole truth; and he endeavours to reconcile them, and to give a complete interpretation of the facts, by saying that there is a deeper principle involved than those which either scientific section has taken into account. He denies that any mechanical interpretation is sufficient, and maintains that if science wishes to obtain an explanation of the whole of the facts it must go to philosophy.

Obviously, if Bergson could make this position good, it would be a most valuable support to his metaphysics. There is considerable difference of opinion as to the measure of his success, for scientific men are largely agreed that an explanation must be sought within science itself, and there is a natural and very proper reluctance to admit any principle which does not admit of scientific investigation. There is, too, always the possibility that new facts may come to light which will settle the question in one direction or the other. We are therefore in an impasse; science cannot compose its differences and will not allow an appeal to meta-

physics. But, we may urge, while either scientific hypothesis is sufficient as a principle of research, it is not reasonable to expect biology to be able to settle a question of such a wide character; if any solution is to be looked for it must come from philosophy, whether that philosophy call itself scientific or intuitional.

Readers who wish to become acquainted with Bergson's excursions into science must proceed direct to his books, for no presentation of them *in petto* could do them justice. An empirical survey naturally bases itself upon the cumulative effect of the facts observed, and a summary might, therefore, be misleading. Nor should too great an importance be attached to the absolute appropriateness of the scientific facts which Bergson uses in illustration of his arguments. It matters little, for instance, whether the Ammophila wasp is less of a learned entomologist and less of a skilful surgeon than Bergson supposed, for there are many kindred facts which might have served his purpose. Bergson does not stand or fall either with his scientific proofs or with his scientific facts. He does not invent his facts; he goes for them to the best-accredited authorities. If those authorities disown the facts, Bergson is quite ready to withdraw any arguments based upon them. What really concerns us is to know what Bergson means when he says that there is more than one science of nature, and that if we are to understand life we must begin by drawing a line of demarcation between the inert and the living.

A criticism of Bergson's philosophy from the scientific side is much wanted. The best, so far, seems to be that of Professor C. Lloyd Morgan[1]; it is always sympathetic, although, unfortunately, only incidental; but it may be taken as representative of a large body of scientific opinion. It is upon this question of the unity of science that Dr. Morgan joins issue. He approaches the question from the biological side, in a study of instinctive behaviour as correlated with its accompanying instinctive experience. There is a difficulty at the outset in that writers use such words as instinct in different ways; but a discussion of the relation of instinct to intelligence, important as it is for Bergson's metaphysics, would carry us too far. Dr. Morgan begins by excluding Source (meaning by this God, First Cause, or Agency) from his scientific "universe of discourse"; he is quite right in doing so, but the exclusion at once serves to suggest that science cannot give us a final interpretation of natural phenomena. We must remember that Dr. Morgan's standpoint is scientific while Bergson's is philosophical; the latter aims at a complete synthesis. In any case it is difficult to draw an arbitrary line of separation between Source and that constitution of nature which is for science the ultimate ground of all experience and of all natural occurrences. We cannot divide a river from its source—although it may be conceded that the analogy is of limited

[1] *Instinct and Experience*, by C. Lloyd Morgan, D.Sc., LL.D., F.R.S., Professor in the University of Bristol.

value. We may agree that the introduction of Source is only an expression of scientific ignorance, but we must have regard to the fact that Source, or God, is a deduction which we have drawn from what we see in ourselves or, more generally, in the constitution of nature. If science could explain things, we should not seek to introduce Source, for that would be to multiply entities unnecessarily. But what if science has not yet begun to explain process and change? Are we not entitled to assume that it never will? Give us time, say the scientists; all that you require, reply the philosophers, but we should like to see you making a beginning. Nor do we rely on any argument from complexity; you are entitled to imagine your science carried to its extreme limits.

The only concern of science with miracles is, it may be admitted, to refute them; or, if it cannot refute them, to find a formula for their interpretation. But it is quite possible to imagine a force which shall be immaterial and at the same time neither miraculous nor freakish. It would, of course, derive from Source; but so, according to Dr. Morgan, does the constitution of nature, and there seems to be no reason why spirit should not form part of this constitution of nature, for the latter is a thoroughly metaphysical conception, full of hidden potentialities and powers, and able, in Dr. Morgan's opinion, to effect new creations even in the sphere of the inorganic. Bergson's spirit may be regarded, like the ether, as an ideal construction.

Like God and like the ether, it is a deduction from what we see in us and around us; and it is conceivable that a completer knowledge might compel us to abandon it.[1] It is no more the hypostatisation of an abstraction than is the constitution of nature. Viewed in this way, it becomes quasi-scientific in the sense that it plays a definite rôle in the economy of the universe. Protean in its applications, it would yet retain a certain uniformity. We can imagine spirit passing through matter, for such a quality is essential to its working, but we cannot imagine it passing a tambourine through a ceiling, for that action would be at variance with our conception both of matter and of spirit, and the fact itself could be admitted only after the severest scrutiny. The fact indeed is so inherently improbable and so far removed from the view we should have formed of the proper sphere of spiritual activity that we should rightly distrust our own senses rather than admit its possibility. These remarks do not apply to all so-called "psychical phenomena." If we admit God, we must, it seems, admit spirit, and we can hardly set a definite limit to its activities a priori. The

[1] Dr. Morgan complains that Bergson assumes his conclusions in his premises, adding, with cheerful candour, "No doubt that is what we all do more or less!" Indeed, it seems unavoidable that it should be so. A scientific hypothesis is formed to account for certain facts; how then can we expect to deduce from this hypothesis more than we have put into it? A philosophical theory is in much the same position, at any rate so far as it is formed to cover empirical observations. We have to remember that what Bergson offers us is not so much a philosophy as a method of philosophising.

question becomes one of probability and evidence, but the latter would need to be conclusive.

Dr. Morgan gives us some interesting glimpses of his own *Weltanschauung*. He holds that the existence of the world does not depend upon its being experienced, and that it does not matter for science whether the world processes are in their essential being just what they appear to be to us. What concerns science is how they exist for experience, and how this kind of existence is to be interpreted. "The world that I am conscious of in common with others, I term physical; and the process of being conscious of it I term mental." Our interpretation of nature is based on the facts we perceive; the order we express in general terms is *in* the constitution of nature, lying there ready to be named and formulated. He does not accept the Kantian view that *we* make the cosmos. We are just parts within the whole, and parts in which conscious relationships, strictly correlated with other relationships, have been evolved. He gives an admirable illustration of the work of the several sciences as the mapping out of those features of the country in which each is more particularly interested. The ideal of science is a complete knowledge-map of world-process and world-products up to date. Bergson might, I think, accept this map illustration, provided that in place of a map we take a chart on Mercator's projection, which, substantially correct at the equator (the inorganic), is progressively distorted as it approaches the high latitudes of life and

mind, and which by reason of that very distortion enables the mariner to set a straight course for the haven he would reach. Dr. Morgan acknowledges that Bergson has ground for saying that, in ideal construction, we translate temporal sequence into spatial terms. There must, then, be some distortion in the map; and we must remember that no map or chart can express motion, change or process. If science is like a map, it must be very much as Bergson conceives it to be.

The object of science may be defined as the correlation of relationships. It accepts correlations as facts, and regards nature as a correlated context of which our conscious relationships form a part, assuming that they are developed within *one* natural order and that they are co-ordinate with other relationships. Why this should be so, science does not venture to say. For it all correlation is a mystery, and the correlation of mind and matter is no more mysterious than any other. We need neither hope nor fear that physiology will ever explain the conscious relationship as such, but it will provide facts with which psychological facts may be correlated. Science sees that some mental states have cortical correlates and asks, Why not all?[1]

[1] The current theories of the relation of mind to matter may be classed as (1) epiphenomenalism, (2) psycho-physiological parallelism, and (3) interaction. Dr. Morgan makes short work of the first. "The argument, I take it, runs thus: Intelligence is correlated with cortical functioning; but if the cortical functioning took place without the correlated intelligence, the behaviour would remain the same. (Here comes in unconscious cerebration

Now Bergson has no quarrel with positive science, and he sees no reason why it should not take universal correlation as an ideal which may serve the purpose of a working hypothesis. He would agree that it is not the business of science to say why processes exist or to seek to explain their conditions, and, further, he would be quite ready to affirm that all knowledge is based on experience. But when all correlations have been made, we are still confronted by the questions whether mind is born of the interplay of material elements and whether there is an exact equivalence or parallelism between the conscious series and the cortical series. A dogmatic affirmation is unwarranted, if, as men of science agree, it is not likely to be substantiated. It is only when science ceases to be scientific and becomes metaphysical that Bergson feels compelled to question it. He is quite willing to agree with Dr. Morgan that science "must set aside all the

and the like.) But have we any evidence that the very same cortical functioning which is developed when intelligence is present, ever does occur in exactly the same way in the absence of such correlated intelligence? May we rub off the slate an observed or inferred correlation and unblushingly say that it doesn't really count?" (p. 262). Epiphenomenalists claim that consciousness is like a phosphorescence and negligible, because it lies outside the system of movements to which the law of the conservation of energy applies. Bergson has dealt at length with parallelism. See above, p. 169 foll. Dr. Morgan prefers the neutral term correlation, and holds that we may accept universal correlation as a scientific ideal. The interactionists maintain that there are two distinct and separate orders; that of matter, of which the body is part; and that of life, of which mind is an attribute.

pure memory business"; he has never put forward his vital impetus as a policy to be followed by biological investigators; he would readily assent that science has been "triumphantly successful" within its own sphere; he has himself declared that the method of philosophy is *practically* useless.[1]

But the relation of mind and body is part of the wider question whether we are to give a teleological or a mechanistic interpretation of the universe as a whole. Bergson agrees to a large extent with the scientific view that universal teleology can be accepted only in the sense of universal intelligibility. All adaptation and "survival-value" in biology imply an end, although, strictly speaking, science cannot regard the present as being affected by the future, unless the future is anticipated. Any "prospective value," apart from the conditions actually present, is entirely in the mind of the interpreter. Hence, as Dr. Morgan maintains, much finalism is only scientific prediction under another name. A purposive process is one which we interpret as proceeding to an end which *we* can foresee; purposeful behaviour implies an intelligent being guided, in virtue of the presence of conscious relationships, towards an end which *he* can foresee, more or less clearly. Hence purpose and end imply some form of preperception, if not of definite anticipation. It is in this sense that science accepts finalism. Science regards new variations without surprise, for it holds that, if they have not occurred

[1] *Creative Evolution*, p. 362.

before, it is because the appropriate conditions have not yet occurred. But in that case they cannot be accepted as "new," for they must have been implicit in things from the beginning and must be regarded as resultants, each apparent novelty being only one of several possible arrangements which might have been foreseen and predicted. Bergson declines to accept the scientific view as sufficient to account for the facts. It implies universal mechanism.

Dr. Morgan makes a praiseworthy attempt to clear up the use of the terms mechanical and mechanistic, although it may be doubted whether the ambiguity causes real inconvenience in practice. He holds that "mechanical" should be confined to the ideal constructions of mechanics, and that we should apply the term mechanistic to the regular sequences of chemistry and physics which are analogous, but not more than analogous, to ideal mechanical movements. We have then to ask whether organic routine can be interpreted in mechanistic terms without remainder. He and many physiologists and biologists claim that there is a remainder. He considers that there are, in physiological phenomena, organic relationships and modes of synthesis which differ from those in a physico-chemical system, and he refuses to admit that we are compelled to adopt one or other of the alternatives offered, "either (1) purely physical compounding in terms of resultants in some hypothetical nerve centre; or (2) purely psychical integra-

tion in terms of a soul-entity whose integrating power is taken for granted to account for the facts;"[1] or in other words that, if biological phenomena cannot be interpreted within the limits of physico-chemical processes, we must have recourse to a psychic entity. We should, he tells us, lay stress on "total reaction," remembering that the cortex is one system with a unitary integrative process, and that the ground of physiological integration is to be sought in cortical process as a whole. This is, he admits, to go in advance of our present knowledge. Dr. Morgan does not discuss reversibility, and he pays only slight attention to the important argument from articulation.

But this appeal to the brain processes as a whole is only an appeal to a more complex mechanism. There certainly appears to be something left in biology after we have removed all physical and chemical processes, and if we ask science what this something is we seem to be told that it is biological process—which is rather like explaining the archdeacon as performing archidiaconal functions. Biological process is so vague a term that the vitalists call it life, the real difference between them and the mechanists being that they regard life as acting into the organism, while the mechanists accept it as produced within, and acting in, the constitution of nature. But if we go a little further back we are compelled, on scientific principles, ultimately to resolve biological process and every other process

[1] *Op. cit.*, p. 282.

into matter and motion. The ideal of science is undoubtedly to interpret the organic in terms of the inorganic, to express all relations by means of static equations, in a word to regard all processes and products as being implicitly contained in that primordial dance of atoms which used to be held to be the primitive constitution of the universe—although it matters little for mechanism what may be taken to have been the ultimate constituents of things.[1] From this point of view Dr. Morgan's effort to escape the alternatives presented seems to be ineffectual. His *via media* may be right enough for the biologist, who is content to describe biological facts as he sees them; but, as soon as we ask for an interpretation of biological process, it becomes a mere halfway-house, and as such is, by definition, not an abiding place.

If we say that biological process has been evolved, we are not adding much to our information. The statement reminds us of Topsy's "I specks I growed." The question, as put by Dr. Morgan, is whether the vital principle was inherent in the molten mass which at one time was the earth, or whether it came *ab extra*. In either case it was clearly compelled to wait for suitable conditions. This consideration presents little difficulty to Bergson's theory, for

1 "For nearly a century—since the days of John Dalton—the chemical atom was the ultimate term of physical and chemical investigation. . . . Recent discoveries in physics and chemistry have, however, completely shattered this conception, and with it that of matter and energy."—J. S. Haldane, *Mechanism, Life and Personality*, p. 100.

his philosophy is not, as Dr. Morgan asserts, a radical dualism.[1] It is essentially a spiritualistic monism, the material deriving from the spiritual but retaining something of spirit; for Bergson holds that the two are one and cannot be explained apart. It is true that he often adopts the view of common sense and contrasts them, but that is done for convenience of treatment. Everything, he tells us, can be reduced to movement; movement is akin to consciousness, and life, like consciousness, is of the psychological or spiritual order. The interaction of life and matter, therefore, presents little theoretical difficulty. It is usual to class all vitalistic theories together, but it is only legitimate to do so in so far as they are non-mechanistic. Bergson, for instance, would by no means accept Driesch's entelechy. His own vital impetus is not so much extra-mundane as extra-scientific. If we conclude, as we seem to be driven to conclude, that mechanism is inadequate to explain the facts, we may yet acknowledge that it is difficult, if not impossible, to see how a vitalistic theory can explain them for the world as it appears to science. If we are to find a solution, we must seek it not in science but in philosophy.

This conclusion is, so far, like that reached by Dr. J. S. Haldane—"The phenomena of life are of such a nature that no physical or chemical explanation of them is remotely conceivable. . . . The mechanistic hypothesis has been the only one of the

[1] *Op. cit.*, p. 159.

two which seemed inherently capable of helping us positively in the details of biological investigation; and yet this hypothesis is unmistakably a failure in relation to biological investigation as a whole; and the vitalistic theory, if one can call it a theory, is only a way of registering this failure, and does not help us to a real understanding. The main outstanding fact is that the mechanistic account of the universe breaks down completely in connection with the phenomena of life. Whether it is not also insufficient in connection with phenomena outside what we at present regard as life is a further question which need not be discussed at present. When any hypothesis fails to correspond with facts it is the hypothesis which needs reconsideration. In the next lecture the physico-chemical hypothesis with regard to our experience generally must first be examined, after which we must consider whether no other hypothesis will fit the facts. It may be that the practical failure of vitalism has depended on the fact that the vitalists have accepted without criticism the physico-chemical account of our experience, and have thus placed themselves in a position in which they are powerless to help biological investigation."[1]

[1] *Mechanism, Life and Personality*, p. 64. A remarkable little book, containing four lectures delivered to the students of Guy's Hospital, who, brought up on the mechanistic teaching of the text-books, may well have been astonished when they were told to put aside the notion of a real and self-existent material universe. Dr. Haldane, himself a physiologist, finds his solution in the direction of Idealism. Those who are interested in vitalistic theories should read Driesch, *The Science and Philosophy of the Organism*, and McDougall, *Body and Mind*.

If there is more in biology than there is in physics or chemistry, and more in psychology, the science of personality, than there is in biology, we clearly cannot expect to be able to interpret the greater wholly in terms of the less. We seem to be entitled to say that there is, in some sense, more than one science of nature,[1] for each science, or branch of science, requires different concepts and categories. The question is in dispute among men of science themselves, and a forcible statement of what may be called the orthodox scientific position will be found in Professor Morgan's pages. The scientist accepts as a policy one order of nature and one science of phenomena, and sets before himself, as an ideal, universal correlation within this order and this science. "If we could tell the story of evolution up to date, it would be one story, all its episodes of process being in some measure related. But if it be one story, is there not one science of nature in terms of which this story may be told?" We might reply to this, that if we are to tell this one story completely, we must begin at the top, with personality, and not attempt to work up from the bottom. Dr. Morgan illustrates his position by comparing the process of crystallisation with the process of life. Under such and such conditions crystallisation will occur; under such and such conditions life will occur—and there for science is the end of the matter. He asks whether we could have

[1] *Cf.* Prof. J. Arthur Thomson, *Hibbert Journal*, Oct. 1911 and Jan. 1912; also his *Introduction to Science*.

foretold crystallisation if we had lived in the molten age before it occurred. Possibly not; but it is a big "if," and Dr. Haldane would probably regard it as a *petitio principii*. There is at any rate this important difference, that we can predict the products of crystallisation once we have seen the process, whereas we cannot predict the products of life. Dr. Morgan further asks why, if there is entelechy in life, we are not entitled to assume entelechy in crystallisation, and what the crystalline entelechy is doing when it is not making crystals.

We may leave Dr. Driesch to answer the last riddle. Bergson's withers are unwrung, for he has always maintained that the method of science cannot be other than what it is, although he has observed that when we go to science for an interpretation of any kind of process, the only interpretation it can offer us is one in terms of inertia. Science is admittedly based on routine. In the inorganic, where routine is all-important, science is all-powerful. In an organism, however, while there is much repetition, there is also a personal history every moment of which is a new creation. In the natural history of experience the same antecedent conditions never recur. How then can science, which is based on routine, find a formula for the interpretation of what is not routine, except by asserting that the new is contained in the old? But this would bring Dr. Morgan back to the position of his master Huxley, who saw in the primitive nebulosity of the universe the promise and potency of all that was to be until

the crack of doom, the whole of the future implicitly contained in the present and deducible by any one who had a complete knowledge of mathematics.

The question whether there is more than one science of nature obviously depends on what we mean by science. We can abstract from life and find physico-chemistry, but we are not thereby justified in saying that physico-chemistry will produce life. If we limit science, as Kant did, to mathematical or mechanical categories, we must either say that life and mind lie outside it, or say that there is another science of nature which will include them. So far as Bergson is concerned, his statement that there is more than one science must not, I think, be taken as meaning that there is, or can be, more than one positive science. What he says is that there are two ways of looking at things, two ways of knowing, science and philosophy, because experience presents itself to us under two different aspects, "on the one hand under the form of facts which are juxtaposed with facts, which are subject to repetition and measurement more or less complete and exact, which in a word are unfolded in the direction of distinct multiplicity and spatiality; on the other hand under the form of a reciprocal interpenetration which is pure duration and which does not admit of law and measurement. In both cases experience signifies consciousness; but in the first, consciousness turns outwards and becomes external to itself in the exact degree in which it perceives things as external to one another;

in the second it re-enters within itself, retakes possession of itself, deepens itself. In thus sounding its own depths, does it penetrate further into the interior of matter, of life, of reality in general? We might doubt it, if consciousness had been added on to matter as something accidental; but we think we have shown that such a hypothesis, according to the side from which it is approached, is either absurd or false, either contradictory with itself or contradicted by facts. We might still doubt it, if human consciousness, though connected with a vaster and higher consciousness, had been set on one side and if man had been put in a corner of nature like a child in disgrace. No! the matter and life which fill the world are just as much in us; the forces at work in all things, we feel them in ourselves; whatever may be the innermost essence of that which is and of that which is in the making, we are it."[1]

Philosophy starts from unity; it does not seek to arrive at it by a unification of external experience, for such a compounding of the results of analysis would not be a true synthesis. Science is an aid to action; action looks to results. The scientific intellect therefore asks in general terms, what conditions must be given for a particular phenomenon to be produced. It goes from one arrangement of things to a rearrangement, from one simultaneity to another. It necessarily neglects what occurs in the interval; or, if it thinks about it at all, it is to consider other arrangements, more simultaneities.

[1] *Revue de Métaphysique et de Morale*, November 1911.

Using these methods, it cannot enter into what is being made, or follow the moving, or adopt the becoming which is the life of things. Science must stoop to conquer; as Bacon said, obey in order to command. Philosophy neither obeys nor commands; it seeks to sympathise. Science, then, like ordinary knowledge is restricted to taking things in a time which it has reduced to a dust or powder[1] and which therefore lacks duration. If we wish to philosophise we must accustom ourselves to see all things *sub specie durationis*.

It is interesting to find Bergson returning in his address at Bologna to the principles which he enunciated twenty-two years before. Not, of course, that they have ever been lost sight of. If he has been "talking all his life," it has been for the purpose of saying this one thing. In duration we find the heart or soul of all his teaching; there we get a glimpse of the image of his philosophical intuition, and it is to the creation of this image in our minds that all the rich resources of his intellect and imagination have been directed. This is the reason why *Time and Free Will* is so important for the student, for, as Dr. McKellar Stewart has said with some degree of truth, *Creative Evolution* is but the *Essai* "writ large." We can see, too, why he has no quarrel with positive science and why some men of science have found his teaching a little irritating, for his thought and theirs have moved on different planes.

[1] See above, p. 241.

Bergson's fine passage, given above, becomes almost intolerably prosaic when translated into what Dr. Morgan calls the "ings" and "eds" of experience, but such a translation is salutary, indeed necessary, if we are to see what it means and if we are not to allow the intellect to be led captive by an appeal to æsthetic emotion. But those who invite Bergson to come off his stilts must not forget that this appeal is perfectly legitimate on his part, since he is endeavouring to enable us to live ourselves into a doctrine which the intellect, on his hypothesis, is unable to grasp. Experience, then, has a double reference; we are conscious of the process of experiencing and we are conscious of that which is experienced—in Dr. Morgan's expressive shorthand, of the "ings" and "eds" of experience.[1] Philosophy deals with the former, science with the latter. If we call the former process and the latter products, Bergson would, I think, answer affirmatively to this question put by Dr. Morgan: "Are not products just bits of frozen world-process which are rendered stable and static for perception and conception?" We can know both process and products, the first directly by intuition because we are part of it, the second indirectly by intellect—indirectly, because we look at them from the outside.[2] Dr. Morgan's question,

[1] For a discussion of experience from the scientific point of view the reader should refer to Dr. Morgan's book.

[2] To take a homely illustration—cheese-mites are at home in a cheese, they are born in it, bred of it, are to all appearance animated cheese, and must have, in regard to cheese and cheesi-

indeed, seems to admit all that Bergson is concerned to claim.

The truth of Bergson's view is bound up with his philosophy as a whole. The force at the back of evolution is, for him, a psychic force. All activity is spiritual, whether in the world-process as a whole or in its processes taken separately or in ourselves. The type of this activity, for us, is our own will as experienced in the undivided continuity of our conscious states. Reality is a continuous flux, of which our senses give us at any one moment a cross-cut, or static view. Life and consciousness are but particular modes of the activity present in all process, growth, evolution or becoming. The life-force, by inserting itself into matter, which is itself a product of the spiritual movement and which still retains a degree of spirituality, has cut out organisms; and their mentality has been developed in the course of evolution either mainly in the direction of instinct or mainly in that of intellect. In our case instinct has become self-conscious, has risen above itself and takes the form of intuition. An examination of instinct shows that it is in close touch with living processes; intellect, on the other hand, has been evolved in sympathy with matter, so much so that its tendency is always to spread out in space matter which is itself not completely extended in space.

ness, an intimate and intuitive knowledge (not in their case self-conscious knowledge) quite different to the practical and scientific knowledge of the mouse.

The method of the intellect, and therefore of science, its work, is to give us a series of cinematographical snap-shots, each of which is static and so unrepresentative of process, and no combining of these immobilities can give us mobility. As parts of the world-process we are, however, in immediate touch with all process, and in order to interpret process we must have recourse to this instinctive insight, or intuition. We thus have an absolute knowledge of reality on two sides; of matter, through the intellect, since the rhythm of matter is so slow as to be negligible, and of process, through intuition, since the spiritual activity seen in process is equally in ourselves.

The above must be taken as a personal impression, which the reader can correct or amplify for himself, since Bergson has not yet given us his philosophy on half a sheet of notepaper. But it may be useful for those who wish to compare Bergson's view with, for instance, that of Herbert Spencer. The latter started with a uniform force, but he was compelled, at the very outset of his argument, to assume that this force was not uniform; and it was useless for him to appeal to new conditions, for it was impossible to explain how these new conditions could have arisen. Differentiation had to arise somehow, and to effect it Spencer's force was compelled to take on the form of that sheaf of tendencies which is the peculiar characteristic of Bergson's spirit. Hence Spencer's force, Bergson's psychical activity and Dr. Morgan's constitution of nature seem to

be at bottom kindred metaphysical concepts. Bergson's theory explains variability and new creations, otherwise inexplicable, but it is sometimes urged that the force at work cannot be spirit, if it is compelled to wait for suitable conditions. This really amounts to asking why the long and dreary process of evolution should have been necessary at all—but we must take facts as we find them. Others ask whether intuition (considered apart from its occasional flashes of insight) really tells us, in regard to processes other than our own, more than that the results of science (and of all conceptual knowledge) cannot be accepted as expressing the whole truth except in the region of the inert. We can, it is said, live life and we can recognise process, but it is questioned whether we can live ourselves into, or sympathise with, processes other than our own. Complaint is made that his account of the ideal genesis of matter is so overlaid by picturesque writing that it is difficult to obtain a clear vision of it; but we must bear in mind that criticism in dealing with cosmic speculations is playing with conceptual counters but ill-adapted to the purpose. Bergson's position seems to guard him effectually from attack from the scientific side; and if philosophical criticism has not been lacking, there is every reason why it should be welcomed. Criticism is as necessary as construction, and out of the strife of tongues truth may emerge. *Merses profundis pulchrior evenit.* George Meredith once said that in our tongue to criticise means to condemn. That is

not true of the language of philosophy, which lays some claim to linguistic nicety. The critics moreover, sometimes and happily, refute one another. What is essential in a philosopher is his central inspiration. If we accept Bergson's duration, the distinction which he draws between the duration in which we act and the duration in which we see ourselves acting, we seem compelled to accept also all the manifold implications of that doctrine, but we must note that we have meantime passed from the intuitional method to the intellectual. In handing over to science the assured realm of intellect while reserving to philosophy the more disputable sphere of intuition, Bergson seems at first sight to be giving science much the best of the bargain, but it must be remembered that philosophy gains the latter without losing the former; the use of the intuitional method does not mean the abandonment of the logical method.

Dr. Morgan takes interpenetration, the fundamental notion of Bergson's duration, as equivalent to what is connoted by the scientific term process, and, I think, rightly. If we examine interpenetration we find that its chief characteristics are continuity, indivisibility and spontaneous activity. We may so far agree with Miss Karin Costelloe,[1] but when she goes on to say that duration is, according to Bergson, what distinguishes the animate from the inanimate, we part company, for Bergson tells

[1] "What Bergson means by 'Interpenetration,'" *Proceedings of the Aristotelian Society*, new series, vol. xiii.

us that the whole universe endures. Even matter endures, though feebly, for there is spirit in matter, and as spirit implies a continuous activity, we may predicate duration of everything except those systems which science has artificially isolated; and even these will endure if they are re-integrated into the whole. It is true that we have immediate knowledge of duration only in our own consciousness and that we infer it in everything that has life, but as life is only one mode of the activity of spirit we must allow duration to everything which spirit informs, even if it be only as a connecting principle. Hence we must allow duration to all process, for there is nothing but process in the universe; and the cross-cuts made by our senses and intellect will naturally lack interpenetration, for they are static moments which we have artificially isolated out of a continuous flux. A melody is a series of discrete notes, lacking duration, and its interpenetration is subjective, that is, is given to it only in our consciousness. So too the movements of a pendulum, although (as I hold) objectively successive have no interpenetration; but both these illustrations are from things artificially isolated. There is no doubt that in *Time and Free Will* Bergson takes the view that succession and motion exist only for a conscious spectator. I have already criticised this view,[1] for it would in my opinion bind Bergson down to a rigid dualism which he is far from holding. Miss Costelloe appears to base her argument entirely on *Time and Free Will*, but

[1] See above, pp. 107, 113.

Bergson's attitude in that book seems to be a pose adopted for the purpose of inquiry.

His doctrine that there is spirit in matter brings him to some extent into line with the pampsychists. The theory of pampsychism is based on the law of continuity, that we cannot, as we regress downwards from man, draw a definite line and say that here life and activity cease. At first sight this seems to be carrying the law of continuity to absurdity, but a closer acquaintance shows that pampsychism has much to say for itself. It may be exemplified in the language used by chemists, that atoms attract or repel one another, and enter into combination with one another, that is, have affinities. Historically, the theory is connected with the monadology of Leibniz, and, if we go further back, with hylozoism. A modern presentment of it will be found in Ward, *The Realm of Ends*, and Paulsen, *Introduction to Philosophy*.

Printed by BALLANTYNE, HANSON & Co.
at Paul's Work, Edinburgh

Some Opinions of the Press on the First Edition

"A sound and competent summary of Bergson's philosophy —no easy undertaking."—*Athenæum.*

"A systematic exposition such as Mr. Kitchin's . . . helps us to grasp the bearings of the philosophy as a whole."—*Saturday Review.*

"May confidently be recommended to students, whether they have or have not studied Bergson's original works."—*Westminster Gazette.*

"Really an excellent summary . . . written in clear and simple language."—*Church Times.*

"This exposition is both pleasing and informative. Indeed, it will give the student a very firm grasp of Professor Bergson's master thought."—*Daily News and Leader.*

"Mr. Darcy B. Kitchin's volume is a work of distinct merit. It is genuinely elucidated, and it is always directed to sending the reader back to Bergson himself."—*Public Opinion.*

"Those who wish to gain an introductory insight into Bergson's metaphysics, and to know something of the line of thought of this philosopher, will find what they seek in this handy little volume."—*Queen.*

"A serious introduction to Bergson's philosophy. I should recommend the Bergson student to begin with 'Time and Free Will,' and then to read this volume."—*T.P.'s Weekly.*

"Mr. Kitchin excels in the introduction and . . . the book as a whole is excellent."—*Yorkshire Post.*

"A useful examination of the philosopher's chief works."—*Yorkshire Observer.*

WORKS BY

PROFESSOR HENRI BERGSON

PUBLISHED BY

GEORGE ALLEN & COMPANY, LTD.

Medium 8vo, cloth, 10s. 6d. net each.

MATTER AND MEMORY

TRANSLATED BY

N. M. PAUL AND W. S. PALMER.

TIME AND FREE WILL

TRANSLATED BY F. L. POGSON.

Date Due

'57

194
B454zk

12543

Kitchen

Bergson for beginners

194
B454zk

12543

Kitchen, [illegible].

AUTHOR

Bergson for Beginners

TITLE

DATE DUE	BORROWER'S NAME
JE 6 '57	RAY SIMSER
JE 3 '59	A. FLEMING
12 16 8	CYNTHIA K MAUSHAK

THE MASTER'S COLLEGE
194 B454zk MAIN
Kitchin, Darcy Butt/Bergson for beginner
3 3540 00005 1027